MOTOR TRIKE®

GL1800 SPYDER / 2+2

SERVICE MANUAL

Motor Trike Spyder 2+2

Motor Trike Spyder

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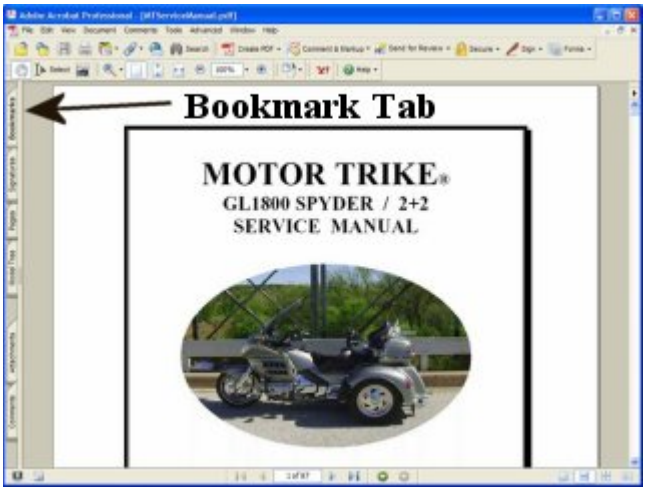
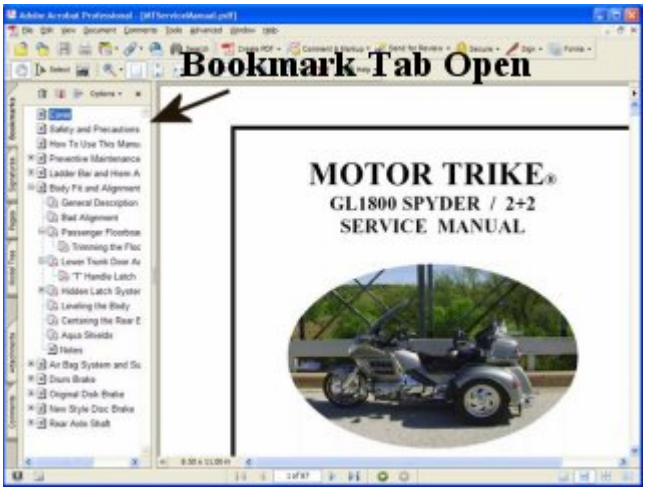
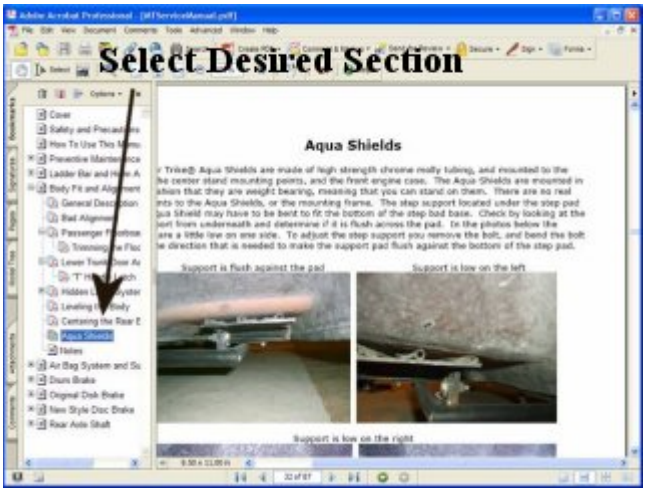
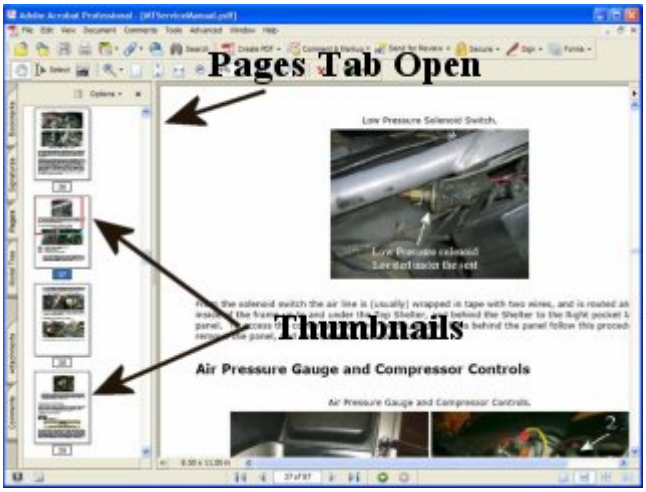








Safety and Precautions

Service Information

The service, and repair information contained in this manual is intended for use by qualified, professional technicians. Attempting service or repairs without the proper training, tools, and equipment could cause injury to you or others. It could also damage the Trike, or create an unsafe condition.

This manual describes the proper methods, and procedures for performing service, maintenance, and repairs. Some procedures require the use of specially designed tools, and dedicated equipment. Any person, who intends to use a replacement part, service procedure, or a tool that is not recommended, must determine the risks to their personal safety, and the safe operation of the Trike.

If you need to replace a part, use parts with the correct part number, or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.

For Your Customer's Safety

Proper service and maintenance are essential to the customer's safety, and the reliability of the Trike. Any error or oversight while servicing the Trike can result in faulty operation, damage to the Trike, or injury to others.

For Your Safety

Because this manual is intended for the professional service technician, we do not provide warnings about many basic shop safety practices (e.g., Hot parts = wear gloves). If you do not feel confident about your knowledge of safe servicing practices, we recommended that you do not attempt to perform the procedures described in this manual.

Some of the most important general service safety precautions are listed below. However, we cannot warn you of every conceivable hazard that can arise in performing service, and repair procedures. Only you can decide whether or not you should perform a given task.

Important Safety Precautions

Make sure you have a clear understanding of all basic shop safety practices and that you are wearing appropriate clothing, and using safety equipment. When performing any service task, be especially careful of the following:

• Read all of the instructions before you begin, and make sure you have the tools, the replacement or repair parts, and the skills required to perform the tasks safely and completely.

• Protect your eyes by using proper safety glasses, goggles, or face shields any time you hammer, drill, grind, pry, or work around pressurized air, or liquids, and springs, or other stored-energy components. If there is any doubt, **put on eye protection.**

• Use other protective wear when necessary, for example gloves, or safety shoes. Handling hot, or sharp parts can cause severe burns, or cuts. Before you grab something that looks like it can hurt you, stop, and put on gloves.

• **Protect yourself and others whenever you have the Trike in the air. Any time you lift the Trike, either with a lift, or a jack, make sure that it is always securely supported. "*Use jack stands*". This is repeated through out this manual.**

Make sure the engine is off before you begin any servicing procedures, unless the instruction tells you to do otherwise. This will help eliminate several potential hazards:

• Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you run the engine.

• Burns from hot parts, or coolant. Let the engine, and exhaust system cool before working in those areas.

• Injury from moving parts. If the instruction tells you to run the engine, be sure your hands, fingers and clothing are out of the way.

Gasoline vapors and hydrogen gases from batteries are explosive. To reduce the possibility of a fire, or explosion, be careful when working around gasoline, or batteries.

• Use only a nonflammable solvent, not gasoline, to clean parts.

• Never drain, or store gasoline in an open container.

• Keep all cigarettes, sparks, and flames away from the battery, and all fuel-related parts.

HOW TO USE THIS MANUAL

This service manual describes the service procedures for the Honda GL1800/GL1800A Motor Trike© Spyder and Spyder 2+2, TRIKE KIT.

Follow the Maintenance Schedule recommendations to ensure that the vehicle is in peak operating condition.

Your safety, and the safety of others, is very important. To help you make informed decisions we have provided safety messages, and other information throughout this manual. Of course, it is not practical, or possible to warn you about all the hazards associated with servicing the Trike. You must use your own good judgment.

You will find important safety information in a variety of forms including:

- Safety Labels – on the vehicle
- Safety Messages – preceded by a safety alert symbol and one of three signal words, DANGER, WARNING, or CAUTION.
- These signal words mean:

⚠DANGER You WILL be KILLED or SERIOUSLY INJURED if you don't follow instructions.

⚠WARNING You CAN be KILLED or SERIOUSLY INJURED if you don't follow instructions.

⚠CAUTION You CAN be INJURED if you don't follow Instructions.

- **Instructions** – how to service this vehicle correctly and safely.

As you read this manual, you will find information that is preceded by **NOTICE:** . The purpose of this message is to help prevent damage to your vehicle, or other property.

ALL INFORMATION, ILLUSTRATIONS, DIRECTIONS AND SPECIFICATIONS INCLUDED IN THIS PUBLICATION ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF PRINTING. THE RIGHT IS RESERVED TO MAKE CHANGES AT ANY TIME WITHOUT NOTICE AND WITHOUT INCURRING ANY OBLIGATION WHATSOEVER. ANY PART OF THIS PUBLICATION MAY BE REPRODUCED WITHOUT WRITTEN PERMISSION. THIS MANUAL IS WRITTEN FOR PERSONS WHO HAVE ACQUIRED BASIC KNOWLEDGE OF MAINTENANCE ON HONDA MOTORCYCLES.

Motor Trike® Maintenance

Preventive Maintenance

Trikes equipped with drum brakes will need to be adjusted at the 500, 1000, 2000 and 4000 mile points or until the brakes have seated. The drum brakes on the rear are equipped with self adjusters, but they will not work due to the light weight of the trike. The brakes will need to be adjusted with a brake spoon. The correct process is to lift the rear end in the air. Remove the rubber adjustment hole cover. It is rectangular in size and about 1" in width. Spin the wheel, and adjust the brakes slowly until the wheel starts to drag. The wheel should be able to spin freely for 270 degrees. If the wheel was a clock, it would start at 12, and stop at 9 o'clock. Reinstall the rubber and repeat process on the other wheel.

1. Grease the rear universal joint easily with one to three pumps of grease every 5000 to 8000 miles, or when oil is changed. Don't over grease.

2. Inspect, and tighten all jam nuts. Make sure a medium grade Loc-Tite is used. **Do Not** use Loc-Tite where Ny-Lock Nuts are used. See Photo at the bottom of second page below. Inspect and tighten the ¾ inch nuts and bolts on the rear end at the ladder bars. Loose rear end bolts will cause slight body wobble while riding, and may make a clicking noise while mounting the Trike. If this is detected, correct immediately.

3. Grease the two swing arm pins on the shoulder where Ladder bars attach to the frame every 24 months, or every 18,000 miles. Use high quality lithium grease.

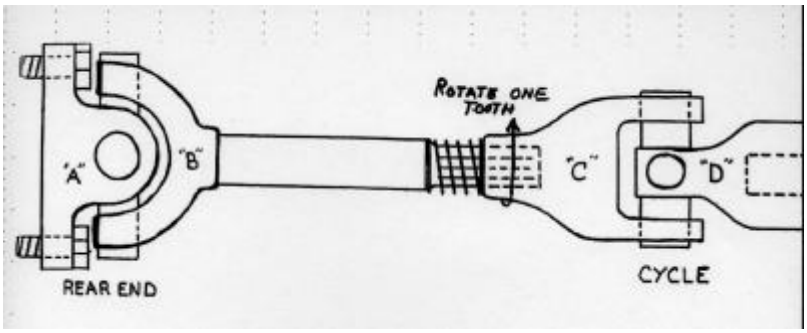
4. Use a dry silicon spray to protect Heim joint from wear. Spray directly on the Heim joints. (3M makes this product and can be purchased at any Auto Supply Store.)

5. Tire pressure for general riding should be 18-24# depending on geographic locations, and road conditions. Use 22-25# for long interstate trips. Over inflation of the rear tires will prematurely wear out the center of the tire.

6. Air Bag recommendations: Use 15-20# for one up, depending on your weight. Adjust to your personal comfort. Add approximately 10-20# for every 60# of passenger weight, and luggage. You have a suspension that uses two coil over gas shocks, and two air bags. If you are pulling a trailer with two people, you would use 40# and up. The Air Bags have a maximum PSI of 120#.

7. Check the Lug Nuts periodically for tightness. The lug nut torque for the Roadhawk billet aluminum wheels is 70-85 ft. lbs. for ½ stud size.

8. If you have vibration from 0-25 MPH, your drive shaft is not lined up correctly. If the drive shaft and the front U joint do not line up perfectly (off by one tooth) make sure that the front U joint runs ahead of the rear universal. Your drive shaft runs (turns) counterclockwise.



9. Grease the forward spline of the driveshaft front and rear with high quality lithium grease every 24 month, or 20,000 to 24,000 miles. This requires the removal of the driveshaft. Be careful not to get the front and rear U joints “out of time” on reassembly.

NOTE:

To aid in installation of the driveshaft, compress spring at spline joint, and hold with wire, or heavy cord around each universal, and draw tight.

10. Fender Bras: It is OK for your fender bras to get wet. However, you must remove them when you are finished riding for the day. If you leave wet fender bras on your trike, for an extended period of time, the paint underneath could blister and peel. Dry the fender bras, and dry the body before reinstalling. The use of a good wax on the fender is recommended and good vinyl protectant on the bras.

Nut types

Standard Nuts Ny-Lock Nuts

LEVELING

Trouble Shooting, and Solving the Problem

If your Trike is not level, and leans to one side, your ladder bars are in a bind. Do this to correct the problem.

A. Leave the Trike on the ground, and find a level area of concrete on which to work.

B. Check the tension on both fenders by pushing them down. Usually the fender that is lower is softer.

C. Unbolt the bottom ladder bar bolt on the side that is leaning. Before pulling out the bolt, loosen the jam nut on the rod end.

D. Take the bolt out and run the rod end OUT anywhere from 1 to 2 ½ turns until the bolt slides in freely.

E. Reassemble ladder bar, and check to see that the Trike is now level.

F. Make sure that you readjust the diagonal bar so that there is no tension.

ALL JAM NUTS MUST BE SECURED WITH A MEDIUM GRADE OF Loc-Tite. Make sure to do preventative maintenance, and check all Jam nuts every 5,000 to 8,000 miles, or at oil change.

NOTES

Ladder Bar and Heim Adjustment

Ladder Bar General Description:

The Motor Trike® Patented Ladder Bar suspension allows the rear end to move on both sides independently to move up and down without the other side being affected. Ladder Bars are made of Chrome Molly tubes with race car type Heim adjustments for a perfect alignment. The air ride allows you to set your own pressure for a custom ride, soft to hard, for one or two riders, or with a trailer. The shocks are gas coil-over from Progressive Suspension Products.

All Motor Trike® kits are manufactured using Air Ride Suspension as standard equipment. Which offers a true suspension, letting the shock absorbers do what they were designed for...to dampen sudden and rapid motion. The comfort and stability of the Air Ride Suspension will give a ride that is considered "unsurpassed in the industry". When you combine the Air Ride Suspension with the Ladder Bar suspension, the result is unique in that the ride quality and handling characteristics split the difference between the traditional solid axle design, and the independent rear suspensions.

The Ladder Bars attach to the inside of the motorcycle frame at the Swing Arm Pivot Point, and rear axle housing via beefy Heim Joints, the upper Heims are canted forward to reduce drive shaft velocity, and level the forward end of the drive line, and provide a slightly progressive lever ratio of the driveshaft. Chrome Molly Tubular steel adjustment arms fitted with aircraft type Heim joints that provide total freedom of movement (adjustment) along with a huge increase in strength over bushings. There is a Ladder Bar on each side of the frame. See Photos L-1 thru L-4

Photo L-1

Photo L-2

Photo L-3

Photo L-4

The Separator Bar and the Diagonal Adjusting Bar, which are seen in Photos L-1 and L-4, are the main focus of proper Ladder Bar adjustment. A properly adjusted set of Ladder Bars are free to move. This movement can not be felt by hand, but can be felt and adjusted in the Separator Bar, and Diagonal Adjusting Bar. The entire suspension system of the Motor Trike® is coupled together with "Heim Joints". A Heim Joint is a free moving coupling joint that allows movement of the attached Ladder Bar at the frame, and independent of each other while holding the rear end firmly in place. That allows one side of the rear end to move up or down with little or no movement on the other side. The Heim's are the key to the suspension, and keeping it in adjustment. See Photo L-5

Rod end Heim Photo L-5

The only adjustment that should have to be made on the actual Ladder Bars is the "Leveling Adjustment" made at the lower rear heim of the low side of the Trike. This is described in the section labeled "Body Fit and Alignment". Any other adjustments will require that the Ladder Bars be removed, and set. If you suspect that there is something awry with the Ladder Bars. Contact your Dealer/Installer or Motor Trike® directly.

Heim Joint Adjustment:

General Discription and Location:

Heim Joint Adjustment in general refers to the Separator Bar, and the Diagonal Adjustable Bar. That is on the forward section of the Ladder Bars. As seen in Photos L-6 thru L-9 below. There is also an adjustable Bar on the rear side of the rear end that is described in the section labeled "Body Fit and Alignment", under the title "Centering the Rear End"

What you will see as you look at the forward portion of the underside of the Trike is depicted below in the photos.

Photo L-6

Photo L-7

Photo L-8

Photo L-9

In photo L-6 you can see the Ladder Bars on each side of the frame, and the Separator Bar that goes straight across the motorcycle. You will also see the Diagonal Adjustable Bar attached at the same point on the left side. As well as the drive shaft. You will notice that the right side of the Separator Bar attachment point is fairly close to the drive shaft. These bars are set up in a turnbuckle arrangement. Meaning that one end of the bar is a Left Hand Thread. There is No way to easily tell which end of the bar is the left or right hand thread. Caution should be exercised while undertaking this adjustment not to "Round Off" the shoulders of the nuts while attempting to brake them loose.

Checking the Heim for Proper Movement:

This adjustment should be done with the Trike on the ground. This will assure that the adjustment is correct. You may place the Trike on jack stands to gain a little better access to the jam nuts to brake them free, but the jack stands should be removed to make the actual adjustments, unless you have the jack stands at the exact same level. If this adjustment is made on jack stands you MUST recheck the adjustment once the Trike is lowered to the ground, and preferably before you tighten the jam nuts.

1. From the Left side of the Trike look under and locate the Separator Bar. The one that goes straight across the motorcycle. This can actually be accomplished form either side of the Trike. The left side will provide easer access to the bars as the drive shaft is out of the way. Refer to Photo L-6 above.

2. With your right hand reach up to the Separator Bar. With your thumb and forefingers grasp the bar, and rock it back and forth. If the bar will not rock freely (with little or no effort) that bar is in a bind, as well as the Ladder Bars. If you have to grasp the bar with the whole hand to move it. It is out of adjustment. The bars should rock freely with little or no effort with just the thumb and forefingers. See Photo L-10 for the proper holding technique.

3. Now locate the Diagonal Bar and ascertain its feel using the same method as just described. Locating the Diagonal Bar can be done by feel, as they are right next to each other, and can be easily determined which is which with out looking. See Photo L-11 for the proper holding technique.

4. If both bars move freely there is no adjustment needed. If just one of the bars is tight (does not move freely), both will have to be adjusted. As one effects the other and they have to be adjusted together. Proceed to step 5.

Photo L-10 The Separator Bar

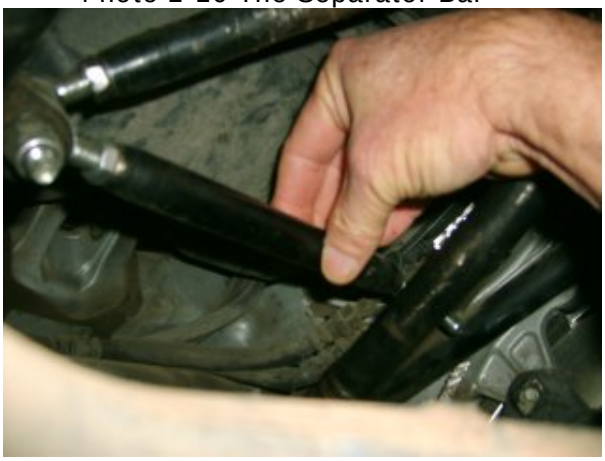
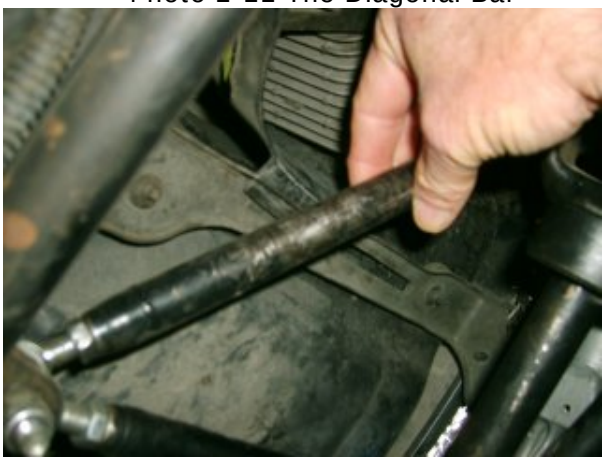


Photo L-11 The Diagonal Bar



5. Break the 9/16 jam nuts free, by backing them away from the bar ends. Remember that one end is a Left Hand thread. Cleaning the threads thoroughly with a stiff brush will aid in accomplishing this. Back the nut away from the rod end a few turns, to allow the bar to be turned in either direction. See Photo L-12 for nut location. The right side of the bars will prove to be the most difficult to back off, as the drive shaft is some what in the way, both front and rear. The jam nuts may be very tight, and were Loc-Tited on installation. Some effort will be needed to loosen them, as well as some dexterity. Positioning the wrench on the nuts is somewhat difficult on the Diagonal Bar on the left side. Be very careful not to round off the shoulder of the nut.

Photo L-12 Jam Nuts

NOTE: The use of a Flare Wrench or a Flare Crowfoot Nut Wrench can assist in breaking the jam nuts loose. Their movement may however be somewhat restricted. If so revert back to the standard open wrench to finish loosing the nut once it has been broken free. Flare Wrenches, and Flare Crowfoot Nut Wrenches are normally not part of a tool box. They are available at any Auto Parts Store, or any Hardware Store that sales tools. They vary greatly in cost from store to store. An inexpensive 6 piece set will most likely serve this purpose well. Remember the undercarriage is comprised of standard SAE hardware, nuts and bolts. The photos on the following page show these types of wrenches.

Flare Wrench

Flare Crowfoot Nut Wrench

6. Should it prove difficult to break the nuts free, or if a shoulder gets rounded off. The bars can be easily removed from their attach points. By removing the attachment bolt on both ends. These bolts are 3/8 bolts with 9/16 head and nuts. A 9/16 box end wrench, and a 9/16 deep socket will be needed.

7. Should you have to remove the bars for any reason? Note the placement of the washers. It is critical that you note their placement, and replace them back in the order that they came off. You will find that left side will have a washer and the right side will not. If the washer is not placed back the bolt head will crush the Heim center collar and it will not "float" in the outer race of the joint. Thus ruining the Heim head and it will not do its job.

   NOTE: If you removed the bar because you rounded the shoulders of a nut, the head can be backed out, and the nut replaced. Generally measure the distance that the head is screwed in and note it. The head is 3/8 SAE Fine thread. Finding a right hand fine thread nut will be easy, and is available at any Auto Parts Store. If it is the Left handed thread that needs replacing, that will prove to be a difficult nut to find. There is an easy fix however. You will have to have access to a vice, and a good fine file, and a 12mm open end wrench. Remove the rounded nut from the Heim head. Place the nut in the vice where the rounded shoulder is up. Carefully file the face of the rounder shoulder flat on both sides. They will be opposite of each other. Rotating the nut a couple of times will be required. Filing off the rounded portion until the 12 mm wrench fits those two sides snuggly. Now carefully match the other 4 sides of the nut to the 12 mm wrench. Use slow and deliberate strokes of the file, and keep it flat and level on the nut face. The end result will be a 12 mm nut with good shoulders. Replace the nut on the Heim head and re-thread it back into the bar end. **Make a NOTE of that nut or mark it in some manner that you will know that it is a 12 mm and not 9/16.** Proceed with the rest of the adjustment.

8. Once you have the jam nuts free back them off 3 or 4 turns.

9. If you removed one or both of the bars. Replace them now (after the nuts are free and backed off)

10. Grasp the tight or tightest bar, and rotate it until you feel it free up, and began to rock freely. The bars work like a turn buckle. Turning one way will spread or tighten, and turning the other way will loosen.

11. Adjust that bar until it rocks freely with just the thumb, and forefingers.

12. Now move to the other bar and repeat the above process.

13. Go back to the first bar that you adjusted and check that it is still moving freely. Adjust again if needed.

14. This will also apply to both bars. Adjust both bars so that they can be rocked easily with the thumb and forefingers.

15. Apply a single drop of Blue (Medium) Loc-Tite on the Heim threads about ¼ inch from the bar end.

16. Now move the jam nuts back against the bars with your fingers and lightly tighten them on each end of the bar. Checking with each tightening of a nut, the movement of the bar. Don't over tighten the nuts. Snug tight will do it.

17. Recheck the bars for easy rocking. A perfect adjustment will be that the bars rock with little or no effort with just two fingers, and a click, or clack can be heard when you go from full one side to the other. That will be the Heim head hitting the stop.

18. This adjustment should take from 45 minutes to 1.5 hours depending on your skills, and that you don't have to reface a rounded nut.

Rechecking the bars for free movement after adjusting.

While you are under the Trike check, and tighten the four ¾ inch bolts on the rear end side of the Ladder Bars. These bolts should be checked at regular intervals or if you notice an odd noise while turning at slow speed. A waddle or slight odd wobble at highway speed is another indication that the back bolts are getting loose. A distinct clicking from the rear while mounting the Trike is another. Loose in the case of the rear bolts is defined as little as ¼ turn on the bolt.

Also give the rear U Joint a single shot of grease.

Rear "U" Joint Grease Zerk.

NOTES

Body Fit and Alignment

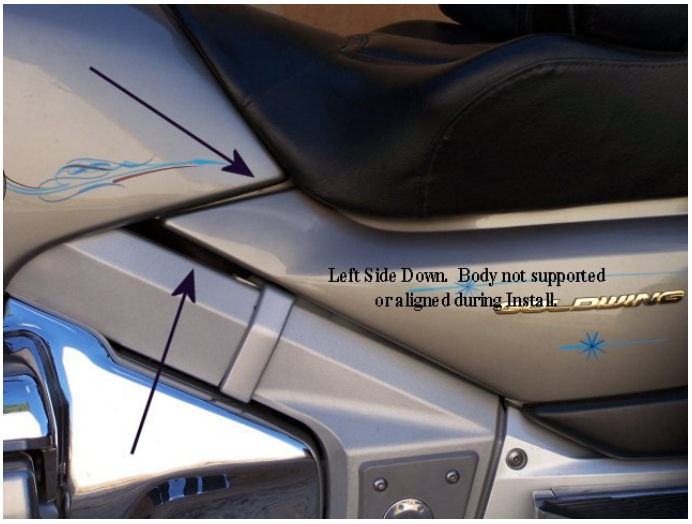
General Construction Description

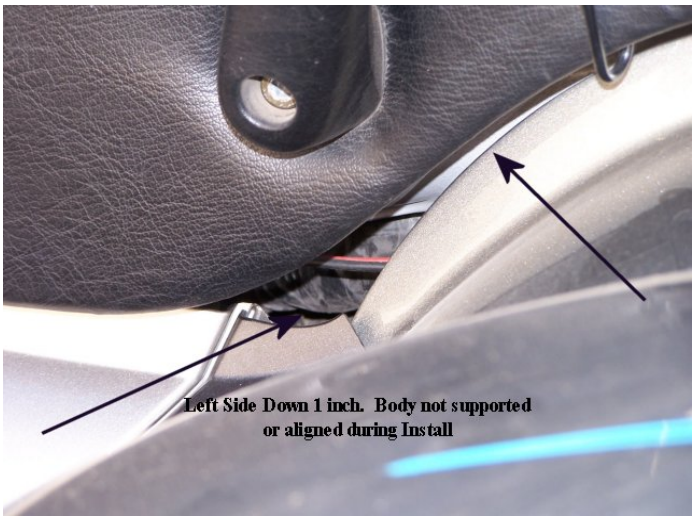
Motor Trike® fiberglass bodies are designed, and manufactured at the Motor Trike® plant in Troup, TX. The fiberglass bodies are laid by hand, which is a very labor intensive manufacturing process. This process produces the quality finish, and strength. Strength in a fiberglass body is in the mat. Fiberglass mat is actually woven fiberglass material that is laminated into the mold. Hand laid fiberglass mat also produces consistent material size through out a section, with superior strength, while maintaining a reduced weight. All of this together, quality finish, consistency of material, superior strength, and light weight, is what makes the Motor Trike® Body the quality product that it is.

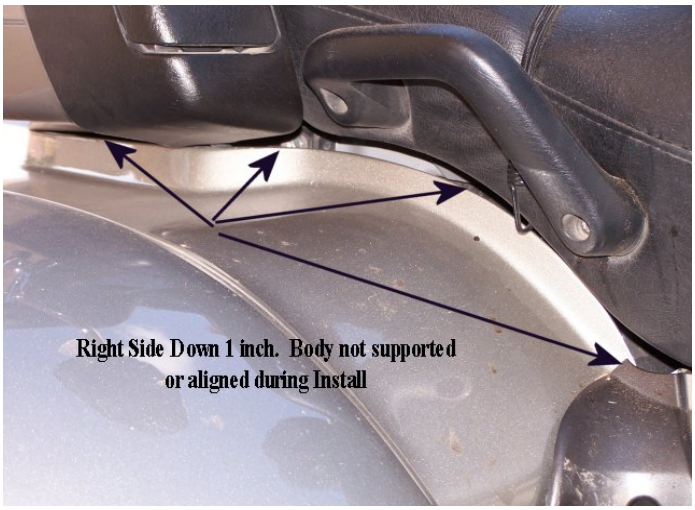
Bad Body Alignment

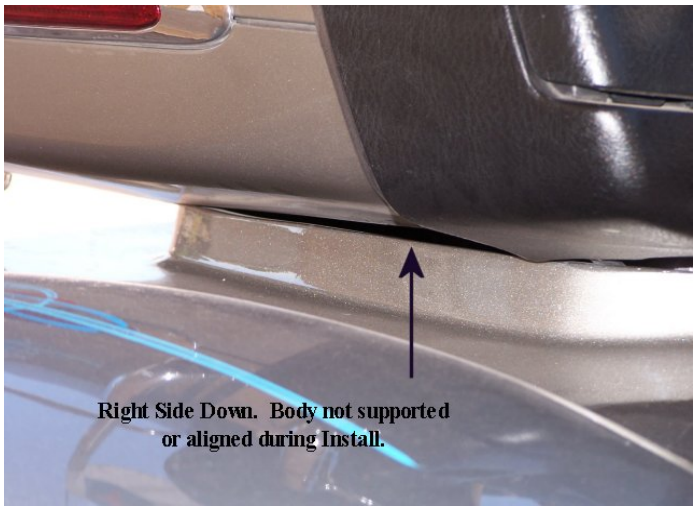
Body alignment and fit are achieved during the installation of the Trike Kit. The body should sit center on the frame, and the side panels should be aligned so that the gap is consistent from one end to the other, approximately ¼ inch. An example of bad alignment is shown below. If the alignment is off as depicted in the below photos, contact Motor Trike®, or your Installer for follow up. There is nothing that can be done by an Owner - Operator for this situation. This is a rare occurrence, but you can see that it does happen. The body can be readjusted to some degree by a competent installer by remanufacturing the forward body mounting brackets. This will require near total disassembly of the Trike to be accomplished. An out of align body in this fashion Does Not effect the ride or handling of the Trike. It is just somewhat cosmetically displeasing.

The photos below show a body that was not properly supported, and aligned as per the installation instructions during the initial Trike assembly. The front body mounts are about 3/4 to 1 inch to low. As a result the side panel covers are not straight from top to bottom, and there are gaps between the body and the seat that should not be there.









As noted above the ride and handling are not affected. This particular Trike was ridden a little over 15,000 miles, over a 14 month period before a body adjustment was performed.

Passenger Floorboards

The passenger floorboards should not touch the fender. There should be approximately ¼ inch clearance between the outer edge of the floor board and the painted surface of the fender, with out the fender bras installed. Should either of the floor boards be touching or rubbing the fender. There are a couple of easy fixes.

Adding Body Washers/Spacers at the frame mount.

1. Remove the side panel of the side that is touching. Locate the body support bracket. See Photo 1

2. First take note of the placement, and quantity of washers between the bike frame and the bracket. See Photo 1.

3. Remove the 9/16 bolt from the body support bracket. The bolt goes through the bike frame, and will require two wrenches. Total bolt removal may not be possible on all Trikes. There should be enough room to push the bolt back to insert spacer washers. The bolt should have

sufficient length on the inside of the bike to add spacer washers. The body bracket should have pressure holding the washers in place.

Photo 1

4. Lift the floor board to prevent damage, or additional damage to the fender, or Bra if installed. If there is a Bra installed it should be left on the fender.

5. Catch the washers if they fall out. Be sure that you have ALL of the washers. At this point you will need to have a few washers on hand to be inserted onto the stack that is there. Pulling on the outside of the fender at the lower most edge, will release the pressure.

6. The easiest way to make this adjustment is to place a spacer of cardboard between the lowered floorboard, and the fender with Bra in place (if so equipped) of approximately 3/8 inch. Three pieces of everyday brown cardboard box will work for this. See Photo 2.

Photo 2

7. Add extra washers until the gap is full. 9/16 “Fender Washers” commonly found at Hardware Stores or Auto Parts Stores is a good choice. Push the bolt through the washers, and back into the bike frame. Replace the nyloc nut on the inside of the frame, and tighten snuggly. Medium grade (Blue) Loc-tite should NOT be used if a nyloc nut is installed.

8. Relieve the pressure on the cardboard by lightly pulling the fender out, and remove the cardboard. If there is a Bra the floorboard should be just touching it, or just off of it. If there

is no Bra installed measure to be sure that there is at least a ¼ inch clearance between the floorboard edge, and the fender. A gap of 3/8 inch is acceptable. Adjust accordingly. See Photo 3 as an example of a good adjustment. Notice: that the edge of the floorboard is just touching the Bra, but not being pushed into it. See Photo 4.

Photo 3

Photo 4

9. Replace the side cover, and make sure that the tabs are fully seated in the grommets.

Trimming the Passenger Floorboard mounts.

If for some reason the adjustment procedure listed above can not be performed, e.g. The mounting bolt is too short to add washers, or it will not back out far enough to add washers. You can gain the needed space by trimming off 1/8 inch of the floorboard mounting tab base. If the above adjustment wasn't preformed before Aqua Shields were installed, this trimming procedure will be the easiest way to gain the needed clearance between the floorboards and the fender. To accomplish this, follow these instructions. Having access to a band saw will greatly assist in this procedure.

1. Lift the floorboard, and remove the two 8 mm Hex attaching bolts.

2. Remove the floorboard from the bike frame.

3. Look at the bike side, of the passenger board where the floorboard was against the frame. You will see that the two mounting bases protrude out approximately 3/16 inch.

4. Carefully mark each mounting base with a pencil or scribe, 1/8 inch from the outside edge. See Photo 5.

5. With a band saw CARFULLY trim each mounting tab "To the line" The use of a band saw is recommended due to the speed of accomplishing this task. An adjustable hack saw, or even a good file could be used, but would take considerable labor, and time to accomplish the task.

Photo 5

6. Dress the sawed surface lightly with a file to de-bur, and smooth the cut area. See Photo 6. Notice in Photo 7, that the trimmed tabs are straight and in line.

Photo 6

Photo 7

7. Remount the floorboards to the bike. Tighten the 8 mm Hex bolts snugly.

8. Lower the boards and check for clearance of the fender.

This trimming procedure will in most cases result in having an “Air Gap” between the floorboard edge, and the painted surface of the fender. Thus relieving the rubbing, and chafing. If there are Bra’s installed it will relieve the inside pressure. Thus reducing the tendency to cut the Bra material, and chafe the painted surface of the fender. Additional trimming of the mounting tabs can be done if Extreme Caution is used “Not” to trim beyond the top edge of the floorboard. Making the trim cuts straight and flush is of “MOST IMPORTANCE”, or the floorboard will not remount flat.

Lower Trunk Door Adjustments.

There are two types of rear trunk latching systems on the Motor Trike® Spyder. There is the "T" Handle style, and the Hidden latch systems. The Hidden Latch door of the Spyder is mounted differently than the door of the Spyder 2+2. Adjusting of each is somewhat similar.

"T" Handle Latch

The "T" Handle is found on various year models of the Spyder. Mostly 2001 to 2002. This Option as of this writing is still available, as an Optional Latching System on either the Standard Spyder, or 2+2 Model.

There is only one adjustment that can be done on a trunk door that has the "T" handles installed. That is the weather seal adjustment. The door is installed with exterior hinges at installation, and there is no alignment that can be done.

"T" Handle Trunk Latch

External Hinge

To adjust the tightness of the weather seal, loosen the hex set screw on the arm of the latch. The arm can then be moved up or down to set the firmness (seal) of the door when the handles are turned to close the trunk. Several attempts may have to be made to gain the proper seal across the top of the door. When the top is equal the sides will be equal, and should provide a good weather tight seal.

Hex Set Screw

Latching Arm

Hidden Latch System: Standard Spyder

The Spyder 2+2 Adjustments Follows this section.

The trunk door of the Spyder is mounted to a metal frame that is mounted to the body by a hinge on each side of the frame. The frame is supported on the left side by a gas shock that assists in opening and supports the frame, and door when open. See Photo D-1

Photo D-1

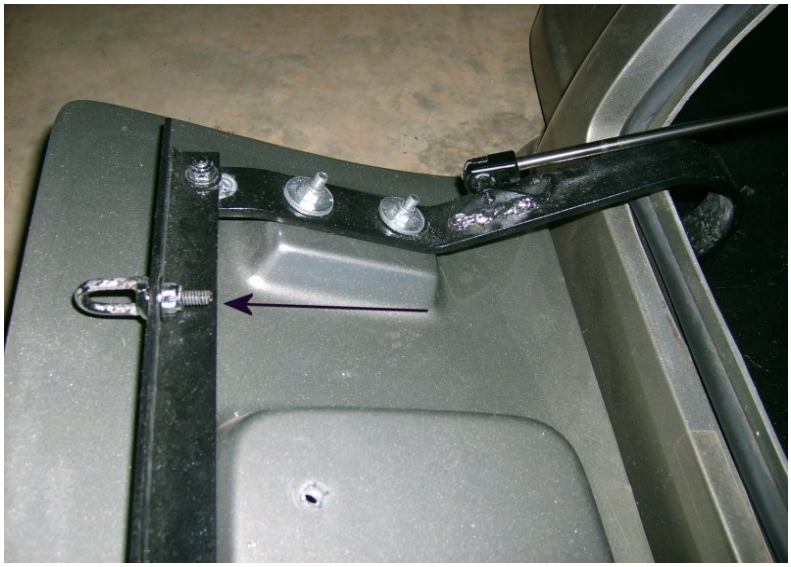
The door is mounted to the frame with 4 bolts. The holes in the frame are large enough to move the door in all directions for the aligning of the door. The door when closed should be equally spaced all the way around the body opening.

Centering the Door

1. Lightly loosen the 4, 7/16 nuts that are holding the door in place. Not so loose that the door will flop, and slide on it's on. Just loose enough that it can be moved with pressure. Adjusting the door is fairly easy, if the door is not too loose on the frame.

2. Close the door easily until it latches. If it latches, and moves to one side, or the other. The latch catches will also have to be adjusted. If this occurs, mark and remove the catches from the inside of the door. By removing the 7/16 nut holding the catch to the top frame. Remember, or mark the inside of the door at the catch with an arrow in the direction that the door moved, with a pencil mark. Using masking tape, placed next to the mounts is good for this. See Photo D-2

Photo D-2



3. Close the door easily, and reposition it so that there is an Equal gap on all four sides. Using thin slices of cardboard on each side will greatly assist in centering the door. See Photo D-3

Photo D-3

4. Carefully, and with out moving the door in the frame. Open the door all of the way. Slightly tighten one corner, and then the opposite corner bolts. Recheck the center. If centered tighten the other corner bolts, and then the first two corner bolts. Don't over tighten the nuts, just good and snug. Recheck for center.

5. Replace the catches just tight enough to stay in place. There are notches cut in the upper lip of the body at the latching area. While closing the door to the point that the catches enter the notches. Look into each notch, and determine if the catch is center of the Locking Mechanism. You will see the locking mechanism just beyond the notches.

6. If one or both are not center, they will have to be moved in the direction that would make them center of the lock. The catch mounting holes may, or may not be slightly elongated, or allow for movement. If they are not. You will have to elongate the holes with a drill bit of the same size, by re-drilling the hole in the direction that the catch needs to be moved, and

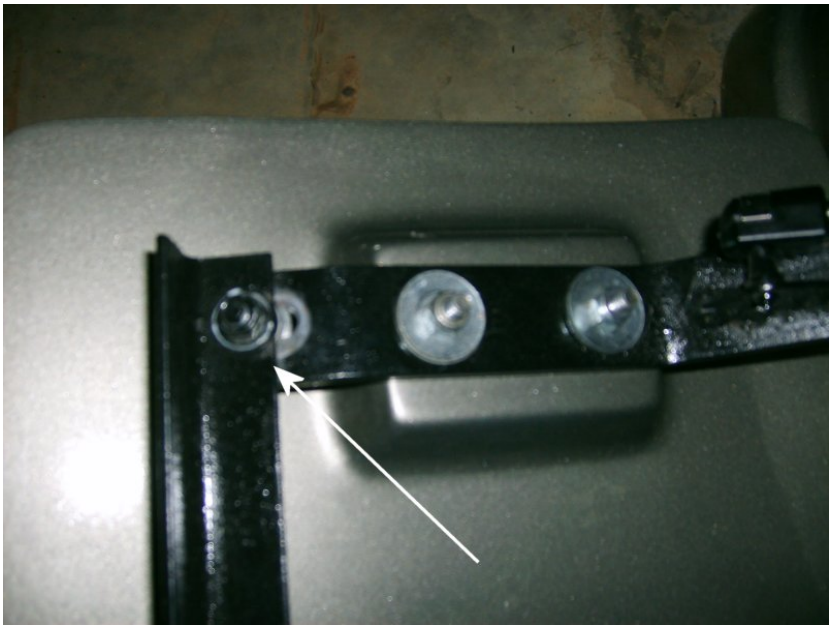
concentrating on making the hole longer in that direction. Normally less than 1/16 inch will do it. Install the catch and check for center, adjust as necessary.

7. Reinstall the catches, and tighten snugly. Close and latch the door, and check for center. Repeat if necessary. This procedure may have to be repeated for the Weather Seal Check below.

8. Check the height of the catch in the lock. It has to be high enough into the locking mechanism that it will lock securely, but not touch the top of the notch, or the lock plate. If the catches are high, or low in the lock, proceed to the next steps.

9. To adjust the height of the catches in the locking mechanism, loosen slightly the 7/16 nut on the top bar of the door frame. See Photo D-4

Photo D-4



10. The hole in the top bar will allow for up and down movement. It will also allow for some slight side to side movement. If you have centered the catches in the locks in the previous steps, use Caution to move the top bar only Up, or Down, and not to either side. This will through the centering of the catches off.

11. By only loosening the nut very slightly, it can be moved up or down with Gentle Taps of a small hammer, or the butt end of a large screwdriver. Position in the direction needed. Making sure that equal movement is made on both ends of the top bar.

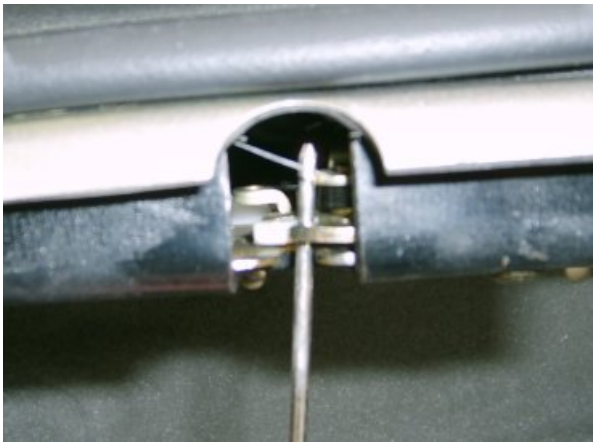
12. Check the centering, and height, and adjust as necessary. Tighten the nuts snugly when done.

Locking Mechanism Adjustment: Standard & 2+2

The Locking Mechanism used is from left take off Saddle Bag. The locks will latch/lock independently when closing. When opening the lock on the right is the master. When released by the latch with the handle under the Travel Trunk the locks should release at the same time. It is common that the left lock will trail the right lock by as much as a ¼ inch. Adjusting the interconnecting locking rod is covered in the Honda Service Manual. The technique is the same, but harder to get to in the trunk.

1. Open the rear door. With a small bar, or #1 Phillips screw driver, press on the lock center to lock/latch. Do this with both locks. See Photo D-5

Photo D-5



2. Pull the release handle slowly, and notice if the locks both release at the same time. If not the connecting rod needs to be adjusted so that they will both release together.

3. The connecting rod is a little difficult to see, and get to while mounted. However, this adjustment has to be done with the mechanism mounted. Locate the plastic retainer clip on the left side. With some pressure push the clip upward to release it from the rod. The rod looks as if it is threaded, but it is not. The thread like marks on the rod are retaining cleats, used to prevent the rod from slipping in the plastic clip. See Photo D-6

Photo D-6

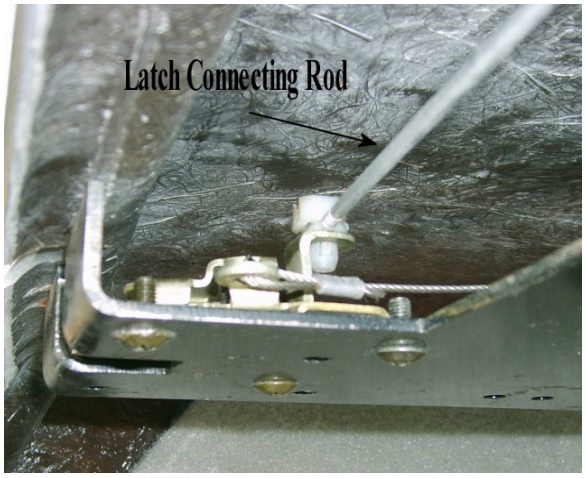
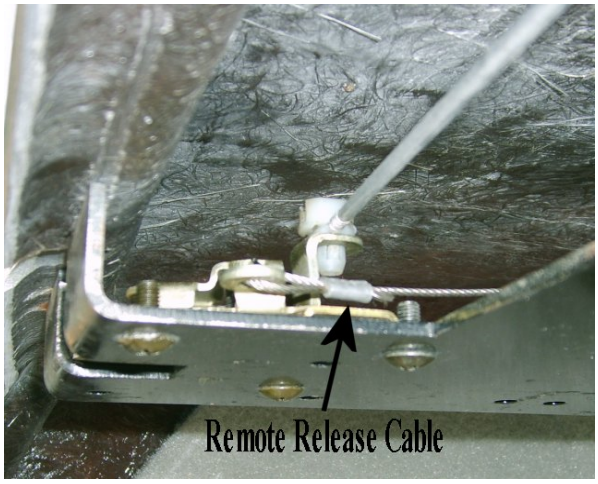


Photo D-7



4. Move the rod to the left one or two catches. Lock the latches as before in No: 1, and release watching the locks open. If they are opening together, press the plastic clip down firmly. If not adjust accordingly. Check to be sure that the remote release cable moves freely. See Photo D-7

Hidden Latch System: Spyder 2+2

Unlike the mounting, and hinge system of the Standard Spyder. The Spyder 2+2 trunk door is larger, and uses separate hinges and latches with out the metal frame work. Each hinge has a short gas strut, mounted low on the accordion hinge mechanism, to allow for easy loading, and assist in opening the

door. Adjusting, and setting the 2+2 trunk door is very similar to that of the Standard Spyder, with only a few differences. Those differences are described in this section. Photos D-8, 9, 10, 11, & 12 shows the hinges, and latches of the 2+2 trunk door.

Photo D-8

Photo D-9

Photo D-10

For alignment, and centering of the 2+2 door, refer back to **"Centering the Door"** section above. Numbers 1 thru 7 describe the process which is essentially the same for the 2+2 door, with the exception of the metal frame work.

Photo D-11

Photo D-12

Centering, and aligning the catches on the 2+2 door is different. You will notice in Photo D-10, and D-12 that the catches are mounted directly to the door. Also there is no up and down adjustment.

If one or both of the catches are not center, perform the following steps. See Photo D-13 below. The catch will have to be carefully moved in the direction that would make them center of the lock. This can be accomplished in two ways.

The safest is to remove the catches, and place in a vice to bend. Only very slight bending is required.

The other way is to bend the catches while attached to the door. This requires an easy touch, and very easy, and slight bending. **EXTREAME CAUTION** should be used not to dislodge the mounting bolts from the door. Recheck for centering in the lock, and adjust/bend accordingly. It may take two or more attempts to get the catches center in the lock.

Reinstall the catches, and tighten snugly. Close and latch the door, and check for center. Repeat if necessary. This procedure may have to be repeated for the Weather Seal Check.

Photo D-13

Weather Seal Adjustment: Standard & 2+2

1. Checking the weather seal of the rear door is easily determined with a thin 2 or 3 inch strip of paper, or a Dollar Bill.

2. Place the paper in the top center of the door, and close it until the door latches. Slowly try to move the paper from side to side. If the paper moves easily, or pulls out with little or no resistance, the seal will leak water. Repeat all across the top edge of the door, and down both sides. Any where the paper can be pulled out with little resistance will leak water.

3. To firm up or adjust the door to seal pressure (resistance on the paper). The catches will have to be moved, in or out. Normally in the out direction (back toward the door) as in Step No: 6 above. Once again only very slight movement is needed, and **Caution** should be used if catches are mounted on the door to prevent dislodging the bolts. See Spyder 2+2 Trunk Door Adjustments.

4. If the seal is tight against the top edge of the door, but the sides are lightly touching, the catches will have to be again moved toward the door, just very slightly.

Leveling the Motor Trike® Body

The body of the Spyder and 2+2 are leveled in the same manor.

If your Trike is not level, and leans to one side, this is what you do to correct the problem.

1. Leave the Trike on its wheels and tires **-- DO NOT RAISE THE TRIKE!!** Find a level area of concrete on which to work. Measuring the distance from the ground to the lower corner of the tail light will assist in getting the Trike level. See Photos below.

Right side is low in these photos.

2. There are two ladder bars that hold the rear end in place. The ladder bars run from the front to the rear of the Trike. They are on the inside of the motorcycle frame. They are connected in front to the swing arm pin. The rear of the ladder bars bolt to the rear end. See Left Photo L-1 below. Right side lower ladder bar shown.

Photo L-1

Photo L-2

3. There is a diagonal bar that is in between the two ladder bars. See Right Photo L-2 above. It goes from the right rear ladder bar to the front left ladder bar. Unfasten the right rear portion of the diagonal bar. It is a 3/8 bolt, which you will unfasten with a 9/16 box end wrench, and a 9/16 socket. This step is optional. Some have found it to be easer to perform the leveling with the diagonal bar loose. Readjustment of the diagonal bar will still be necessary. See Step #9.

4. Loosen the jam nut on the bottom leg of the ladder bar, on the side that is low. See Photo L-3.

Photo L-3

Photo L-4

5. Loosen the lower ½" bolt that connects the ladder bar to the rear end. It will take a ¾ " socket, and box end wrench. See Photo L-4 above.

6. Take the bolt out, and thread the rod end **OUT**, anywhere from 1 to 2 1/2 turns, until bolt slides in freely. Adjust the rod end so that the Trike is level.

Note: Backing out the Heim joint head can be quite difficult if there are several thousand miles on the Trike. It could be very tight. Using two 6 inch crescent wrenches will assist in the backing out of the Heim head. Tighten one down on the Heim head in the center, and adjust the other to the size of the handle of the first. Place second crescent wrench on the handle of the first crescent wrench. Turn in the direction that would be out. See Photo L-5.

Photo L-5

7. Install the bolt with the nut, and check to insure that your Trike is level. Adjust if necessary.

8. After the nut, and bolt have been secured, and your Trike is level, apply medium grade Loc-Tite to the jam nut threads, and re-secure the jam nut. **NOTE:** If Ny-lock nuts are used, **Do Not use Loc-Tite**. It will melt the nylon locking core of the nut.

9. Make sure you readjust the diagonal bar so that there is no tension. (The bar moves freely with just your thumb, and forefinger, rocking it back, and forth between the thumb, and finger). Reinstall the 3/8 bolt securing the diagonal bar. For further detail on Heim joint adjustments refer to the section on "Ladder Bar, and Heim Adjustment" of this manual.

Centering the Rear End

The rear end of the Motor Trike® is centered in the frame and the body, and held in place (center) by a diagonal adjustable bar with Heim joints on each end. This bar goes from the upper right rear side of the rear end, upward to the upper left main Trike frame. Adjusting (centering) the rear end will improve the track, and handling of the Trike. It will also remove, or prevent a dragging tire on the fender. See the photos below for the location of the diagonal adjustable bar with the Trike Body off.

If there is a tire that drags on the fender, (which is usually noticeable while riding on an uneven or rough road) or if the Trike tracks unusually hard to one side, the rear end is most likely not centered. Slight right drift is to be expected due to the crown in the roadway. To check the center of the rear end is easy

to determine. With a tape measure insert it into the wheel well at the top center, and with the end of the tape just touching the tire, mark or record the measurement. Go to the other side and do the same. A difference of ¼ inch is NOT OUT of adjustment, a difference of ½ inch or more is out of adjustment. Should the measurements prove to be center, and there is still a tire rubbing as described. The coil over shocks may have to be adjusted up a notch or two. For more information on the coil over shocks see the section on "Air Shocks and Suspension". See photos below for typical measurements.

The measurements in the below photos have a difference of 1/16 inch, adjusted from ¾ inch difference, now a good centering.

To gain access to the adjustable bar on the top of the rear end the seat has to be removed.

1. To remove the seat, remove the 4, 6 mm bolts that hold the grab handles, and the seat to the bike.

2. Reaching into the center of the back of the seat, pull the separator pad forward a little, and grab the seat at the base and lift up, and back. This will allow for the seat to be removed. Place the seat somewhere that it will be out of the way while you are working around the Trike.

3. Looking at the rear of the area that the seat came form, look down through the wiring, and you will see the left upper end of the adjustable bar. Careful moving, or rearranging of the wiring harness temporally may be necessary. See Photo C-1 and C-2 for jam/lock nut location.

Photo C-1 From seat area

Photo C-2 From underneath

4. Loosen the ¾ inch jam/lock nut on the upper end of the adjusting bar, and back it away from the bar several turns. Be careful not to round off the shoulders of the nut. One end is right hand thread, and the other is left hand thread, and there is no way of telling which end is which. Cleaning the threads of dirt,

and grime will greatly assist in this step. Some have found that the nut is somewhat easy to get to from the underside, however, it is still awkward. Some dexterity is required wether accessed from the seat area, or from underneath.

5. The other end of the adjusting bar can also be seen through the seat area. However, it is a little difficult to get to. The jam/lock nut can be accessed from the right front side. Some patience and dexterity here is also required. Reaching down through the opening to the right of the bike frame, and with a ¾ inch open end wrench in hand. You can, with the aid of the other hand, place the wrench on the jam/lock nut. If the left jam/lock nut was a right hand thread, this one will be a left hand thread, keep that in mind. Break the jam nut loose, and back it away from the adjusting bar end several turns. That will allow the bar to be adjusted. See Photo C-3

Photo C-3

6. To adjust the rear end to the right or left the adjusting bar will have to be turned from the center. This is accomplished by reaching down through the center of the gap between the front of the tour trunk and the frame. Be mindful of the wiring, and move it to a side that will allow reaching through this space. This space is somewhat narrow. If you have large forearms it will be difficult to reach the adjusting bar. Enlisting a helper with smaller forearms may be required. Some hand strength is required to make this adjustment. It has been found that this adjustment is easiest accomplished from the left side of the Trike. Using the left hand to turn the bar, and the right hand to feel for body movement and direction.

7. With your hand on the adjusting bar (Your hands should be clean and free of any grease or oil at this point.) Place your other hand in the wheel well with your fingers pointing up as if grabbing the fender to lift up. Rest the knuckles on the tire. Turn the adjusting bar in one direction a turn or two, while feeling for movement of the body with the other hand. Movement of the body will also tell you the direction that it moved (Right or Left). If you have an assistant, they can make the measurements with the tape measure, while you remain in position for further adjustments. If not you will have to get into, and out of this position, possibly several times to accomplish the centering. A measured difference of 1/8 inch or less is typical and considered a good alignment. Make adjustments as necessary to obtain center.

8. Once the Trike is centered, reposition the jam/lock nuts against the adjusting bar and tighten, using Medium grade Loc-Tite to hold the nut in place. With your outer thigh, nudge the Trike body at the wheel well a couple of times on each side. After doing this check to be sure that the adjusting bar is free (can be moved easily with the thumb and fingers). If the adjusting bar is hard to move, the front Heim joints are in a bind, and will also have to be adjusted. Do this before replacing the seat as you will have to check this again after the front Heim joints have been adjusted. For further detail on Heim joint adjustments refer to the section on “Ladder Bar, and Heim Adjustment” of this manual.

9. Replace the seat and test drive. Check for handling, and ride of the Trike. It is possible that further adjustment may be required. Checking, and rechecking you measurements, and work will reduce the possibility of having to make further adjustments.

Aqua Shields

The Motor Trike® Aqua Shields are made of high strength chrome moly tubing, and mounted to the Trike at the center stand mounting points, and the front engine case. The Aqua Shields are mounted in such a fashion that they are weight bearing, meaning that you can stand on them. There are no real adjustments to the Aqua Shields, or the mounting frame. The step support located under the step pad on the Aqua Shield may have to be bent to fit the bottom of the step bad base. Check by looking at the step support from underneath and determine if it is flush across the pad. In the photos below the supports are a little low on one side. To adjust the step support you remove the bolt, and bend the bolt tang in the direction that is needed to make the support pad flush against the bottom of the step pad.

Support is flush against the pad

Support is low on the left

Support is low on the right

Periodically you will want to check to make sure that the bolts on the Aqua Shields are tight. Tighten them by the nut side with a wrench or ratchet. The bolts that attach the fiberglass body to the frame should be good and snug. Don't over tighten these. The frame bolts are to be tight. There are two 10 MM bolts at the front of the frame that attach the frame front to the engine. These are into aluminum. Don't over tighten these; there is the Danger of stripping out the threads in the engine housing.

NOTES

Air Bag System and Suspension

All Motor Trike® kits are manufactured using Air Ride Suspension, consisting of two air bags, and two Progressive coil-over shocks as standard equipment. This offers a true suspension, allowing the shock absorbers do what they were designed for, to dampen sudden and rapid motion. When you combine the Air Ride Suspension with the Ladder Bar suspension, the result is unique in that the ride quality and handling characteristics split the difference between the traditional solid axle design, and the independent rear suspensions.

The air ride suspension is a closed system. Once there is air in the system it should stay pressurized near indefinitely. Should the air system loose pressure at a rapid rate, there is a leak in the system that needs to be found and repaired. If the air system holds air for days or weeks with little pressure loss there is a Slow Leak, which may be difficult to locate and repair. The easiest way to detect a leak in an air system is to use a mixture of dish washing liquid and water in a spray bottle. Spray or drip the soapy water on the airline connections, and the air bag. Look for bubbles. It is that simple.

Riding the Trike with no air in the system is not recommended. The shocks alone may not hold your and the Trike's weight while underway, which may result in possible damage to the bike frame. The following Photos show where the air lines and the air bags are located. The Optional Air Compressor and air pressure gauge location and Trouble Shooting will be described following this series of Photos.

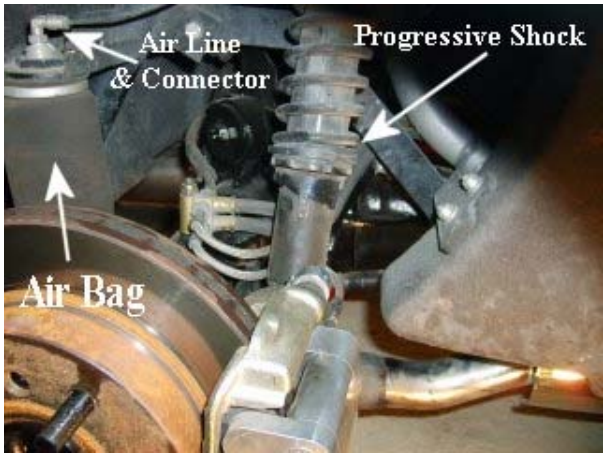
⚠WARNING

You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

CAUTION
Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.
Always use Eye Protection when working with Compressed Air.

Lift and support the Trike on Jack Stands. Remove either or both of the wheels to locate and check the air lines and air bags. The air bag is located behind the axle shaft on both sides of the Trike. The shock is located on the front side of the axle shaft.

Air Bag & Shock



Air Line Manifolds

Trikes without the Optional On Board Air Compressor

Increase the pressure in the system to 50/60 pounds via the Schrader valve located in the trunk.

Locate the air lines, and connector manifolds. Start from either side of the Trike, at the air bag. Spray the soapy water on the connections. There are two connections on the top of the air bag. One that the black hose is connected to, and another where the "L" connector screws into the top of the bag. Look for bubbles coming from the area that you just sprayed. If a leak is detected in the upper connection where the hose is inserted, gently tighten the Ferrell nut. If the leak is at the bottom connection where it screws into the bag. **Release the air from the system before continuing.** Remove the hose from the top connection, and back out the main connector. Clean the threads of the connector thoroughly. Wrap the threads with silicone tape (at least two wraps), or coat with Non-Hardening "Silicone Base Plumbers Putty". Reinstall the connector and hose. Pressurize the system and recheck for leaks.

Move to the hose connector manifolds located under the seat in the center. There are three of them that may or may not be tied to the cross member. Spray the manifolds with the soapy water, and examine for leaks. If a leak is detected, with one hand lift up the red top of the leaking line, and with the other hand press the hose firmly into the manifold. Recheck for a leak. If the leak persist in the manifold release the air in the system, and with the same method as above remove the hose, and check that the end is cut square and clean. Trim the end of the hose with a sharp knife or razor blade. Re-insert the hose fully into the manifold. Pressurize and recheck for a leak. Do this with all of the connections that may be leaking. Trace the last line to the location of the Schrader valve, and check the underside in the same manor. Tighten the Ferrell nut gently if there is a leak. If a leak here persist, remove the Ferrell nut and trim the hose end as with the manifold. Check the Schrader valve from inside the trunk for a leak in the valve itself. If the valve is leaking, tighten with a valve core tool and recheck. If the valve core is still leaking replace it with a new one. Valve cores can be found at any Auto Parts Store. This is mentioned last because a leaking valve core is rare.

Trikes with the Optional On Board Air Compressor

Increase the pressure in the system with the compressor control switch to 50/60 pounds.

Removal of the seat is required to gain access to the main air hose and the air compressor, as well as the low pressure solenoid switch, and the air line that goes to the air gauge and switch.

As mentioned previously above, check the air bag connections, air lines, and the manifolds

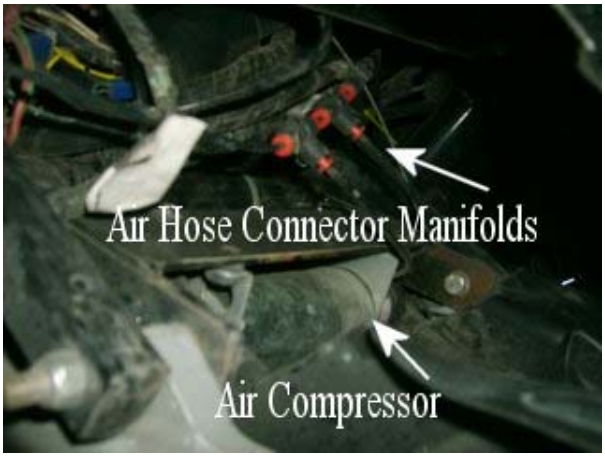
After the air bags and manifolds have been checked, and with the seat removed, trace, and check the air line to the main air hose. The main air hose is much larger, and has a brass connector on the end to which the smaller black plastic hose is attached. This hose connects directly to the air compressor. See Photos below for location and identification. The compressor is located on the topside of the Trike frame. The compressor is located on the topside of the Trike frame just under the modified rear inner fender.

Locate the main air hose, and check the connector where the small plastic line connects with the soapy water as with the other connections. Also check the main air hose for cracks, and leaks in the same manor.

Gaining access to the compressor is a little difficult to check the connection at the compressor head. You can cut the tie wraps that are holding the back side of the inner fender, and lift it up to spray the head and connection. If you find that either the main air hose or the connection at the compressor head to be leaking, you should contact your Installer or Motor Trike® for a replacement. Also look to be sure that there is a filter attached to the compressor, just below the compressor head. If the filter is missing contact Motor Trike® for a filter.

Air Compressor.

Air Hose Manifolds and Compressor.



Air Compressor from underneath.

Main Air Hose located on cross member.

NOTE: Not all installers use correct wire colors

Proceed in tracing the air line forward to the Low Pressure Solenoid, shown below. This solenoid switch is quite likely to be wrapped with electrical tape, or a plastic covering. You may have to remove the tape to check the air line connection. The tape is to protect the wiring from shorting out against the frame. Check the solenoid switch with the key in the OFF position. With the Ignition in the ON position there is 12 Volts applied to the Red wire. Avoid touching the solenoid wire connections against the frame at all times.

The function of the Low Pressure Solenoid Switch is to maintain 10 pounds of pressure in the system. If you have an air leak that allows the pressure to drop below 10 pounds the compressor is automatically engaged to increase the pressure up to 10 pounds. If you hear the compressor start as soon as you turn on the key to start the Trike, you have a leak that allowed the system to go below the 10 pound of pressure, “0” indicated on the gauge. If you do not hear or notice that the compressor activated when the key is turned on, it is quite likely that the electrical connections are loose, or the switch is bad.

Check the wire connections on the solenoid switch with a Multimeter to see if there is 12 Volts present on the Red wire at the switch. Also check with the meter set to Ohms, the ground (Black) wire for continuity to the frame. If the 12 Volts is present on the Red wire, and the Black wire has continuity to the frame, the switch is bad. If this is the case you will have to contact your Installer or Motor Trike® for a replacement.

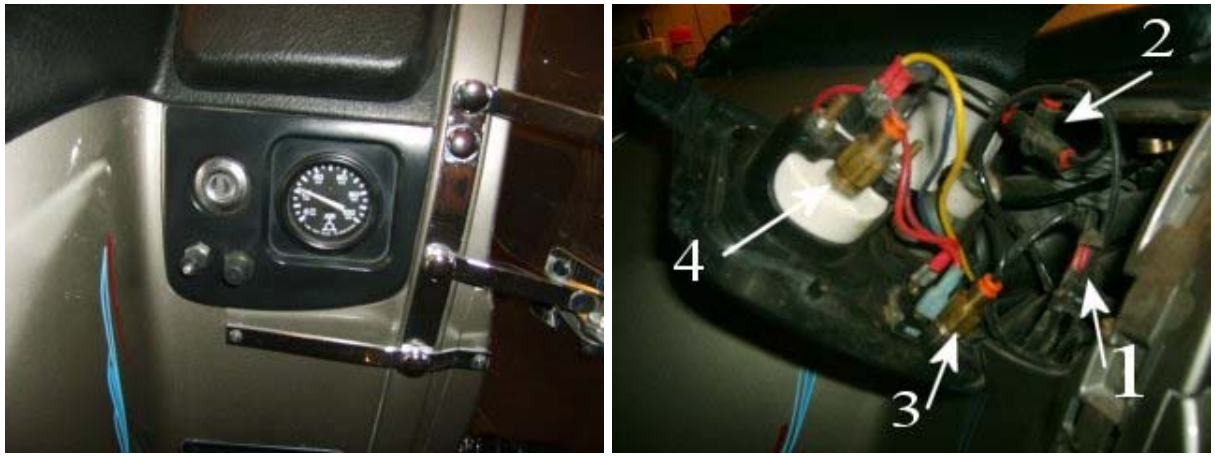
Check the air line connection for leaks with the soapy water. Tighten the brass connector lightly or re-tape as necessary. Trim air line as above if required.

Low Pressure Solenoid Switch.

From the solenoid switch the air line is (usually) wrapped in tape with two wires, and is routed along the inside of the frame up to and under the Top Shelter, and behind the Shelter to the Right pocket latch panel. To access the compressor control switch, and air lines behind the panel follow this procedure to remove the panel, and check the air line connections.

Air Pressure Gauge and Compressor Controls

Air Pressure Gauge and Compressor Controls.



Number 1: Air line and wires from Low Pressure Solenoid Switch.

Number 2: Compressor control panel Air Manifold

Number 3: Air Release Valve connection.

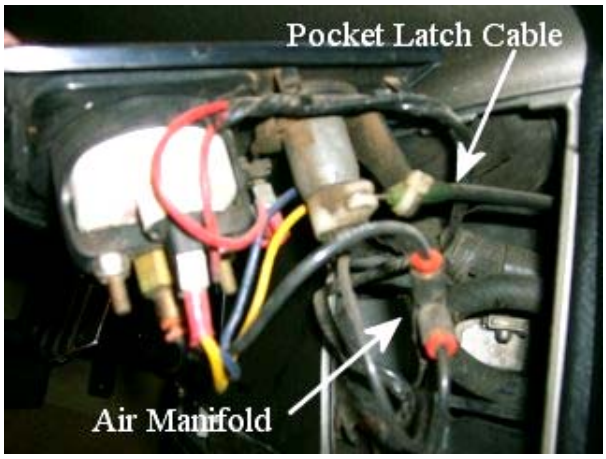
Number 4: Air connection on rear of Air Pressure Gauge.

1. Remove any attachments that may be installed on the faring. Carefully remove the trim piece along the side of the Right pocket. This is easily accomplished buy carefully inserting a small flat screwdriver on the inside portion of the trim piece at the bottom, and lift it up to release the tab. With your fingernails you can continue releasing the tabs up to the top. Carefully rock the trim piece away from the faring to remove it.

2. Remove the top 5 Millimeter Hex bolt allowing the panel to be lifted forward, and to the Left. This will expose the backside of the panel. Lay the panel gently against the Shelter side. Use some caution not to unhook the latching cable that is routed to the lock. Double check this on reassembly, to insure that the pocket will unlatch. See Photos P-1 and P-2.

Photo P-1 Air Gauge Panel

Photo P-2 Air Lines and Wiring



3. You will see the air line coming up from behind the panel with the two wires. As mentioned above, this is the line from the Solenoid switch. See Photo P-3. Spray the manifold connections with soapy water, and check for leaks. **DO NOT** to spray the electrical connections in this area.

4. Check the air release valve connection for leaks. See Photo P-4.

Photo P-3

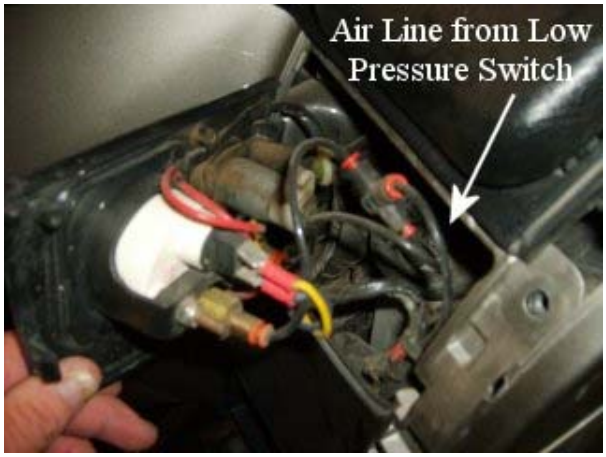
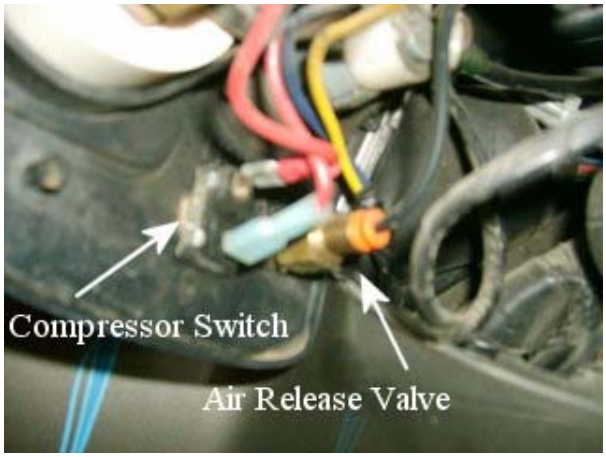
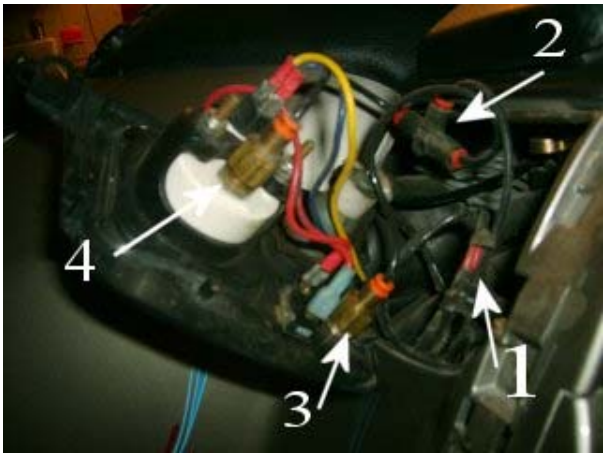


Photo P-4



5. Check the air connection on the rear of the pressure gauge for leaks. See Photo P-5, Item 4.

Photo P-5



When all lines have been checked for leaks and any found leaks have been repaired, replace the panel in the reverse order that it was removed. Use caution when replacing the colored faring trim. Start at the top and work the outside tabs into the holes in the faring. Then with easy rocking motion the other inboard side will snap into place. Do not force the trim piece down you could break the tabs on the bottom side of the trim piece.

Digital Gauge and Control System

Information on the Digital control system was not available at the time of this writing. Trouble shooting the air lines are the same. Leak detection and repairs are the same. Information will be added as it arrives. If you have a Trike with the Digital Control System, and are having problems with the electronics, or switches contact your installer or Motor Trike® for assistance.

Progressive Coil-Over Shocks

⚠WARNING
You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

CAUTION
Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.
Always use Eye Protection when working with Compressed Air.

Lift and support the Trike on Jack Stands. Remove both of the wheels to adjust the coil tension of the shocks. The shocks come from the manufacture set in the second from the bottom setting. To adjust the tension on the shock coils you will need a “Shock Tool”, (See Photo P-6) or a large pair of “Channel Lock Pliers” to rotate the spring base (Photo P-7) into the position that you want it in. This is a very stiff spring, and requires considerable force to move it up or down. **DO NOT** hold the shock base with one hand while making the adjustment. This shock will Bite ferociously. Place the shock tool, or large pliers in a grove on the spring base that will allow you to move the spring in the direction that you are adjusting to, UP for more spring pressure or DOWN for less spring pressure. Rotate the spring base one

notch at a time until you have it set to where you want it adjusted. This adjustment is the preference of the rider. Adjust to your personal comfort or riding style. This is normally a one time adjustment.

Photo P-6

Photo P-7

NOTES

Motor Trike ® Drum Brake, Brake Shoes
REMOVAL & INSTALLATION

CAUTION

Older brake pads or shoes may contain asbestos, which has been determined to be a cancer causing agent. Never clean the brake surfaces with compressed air! Avoid inhaling any dust from any brake surface! When cleaning brake surfaces, use a commercially available brake cleaning fluid.

⚠WARNING

You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

CAUTION

Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.

Always use Eye Protection when working with, and using Cleaning Solutions, and or Compressed Air.

SPECIAL NOTE

Most of the Photos used in this section show a 5 LUG Axle. The Motor Trike® has the 4 LUG Axle. The photos and diagrams were chosen for clarity. The parts placement and procedure is the same. Cretan items; like the Parking Brake connections, and associated hardware, may, or may not be in place. That depending on the Trike configuration, or installed Options.

PARTS LISTING FOR THE 7.5 FORD REAREND, USED IN THE 2001 -2002 MOTOR TRIKE® GL1800 SPYDER WITH DRUM BRAKES.

PART NAME	PART NUMBER	ALT Number
BRAKE SHOE (9.5 X 1 ¾)	PAB 474 Fed-Mogul(WAGNER)	(Ford OE# C3DZ2261A)
BRAKE DRUM	BD60355 Fed-Mogul(WAGNER)	(Ford OE# D8BZ1126A)
WHEEL CYLINDER	F98414S Fed-Mogul(WAGNER)	
Auto Adjust Kit Left	F98414S Fed-Mogul(WAGNER)	
Auto Adjust Kit Right	F98415S Fed-Mogul(WAGNER)	
Combination-Kit	F78550S Fed-Mogul(WAGNER)	
U JOINT	369 (PRECISION)	
U JOINT	1-0153 Fed-Mogul(WAGNER)	
Yoke	2-4583 Fed-Mogul(WAGNER)	
Flange	2-2939 Fed-Mogul(WAGNER)	
AXLE SEAL	8660S (NATIONAL Oil Seal)	
REAR COVER GASKET	RDS55081 (FED PRO)	
PINION SEAL	PT3604 (NATIONAL Oil Seal)	
AXLE BEARING	R1563 (FED MOGLE)	

1. Raise, and support the Trike, on Jack stands. Remove the wheel, and brake drum from the side to be worked on.

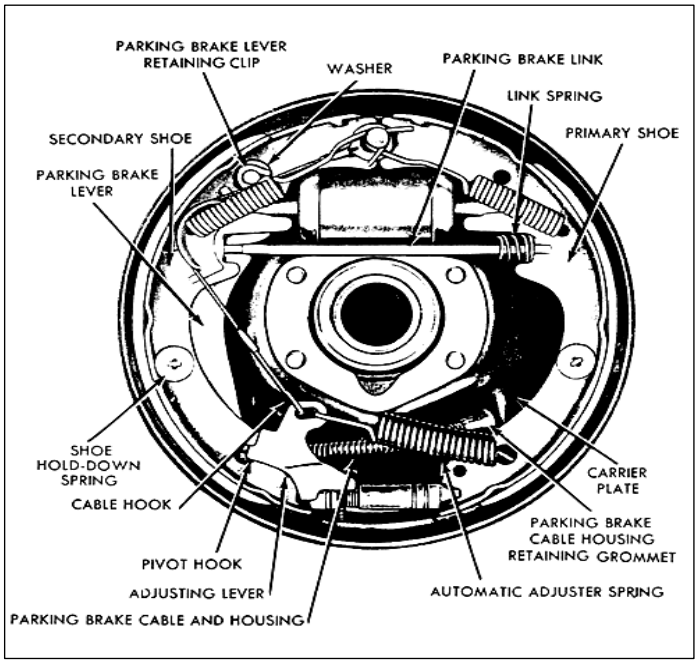
NOTE: If you have never replaced the brakes on the Trike before, and you are not too familiar with the procedures involved, only disassemble, and assemble one side at a time; Leaving the other side intact, as a reference during reassembly.

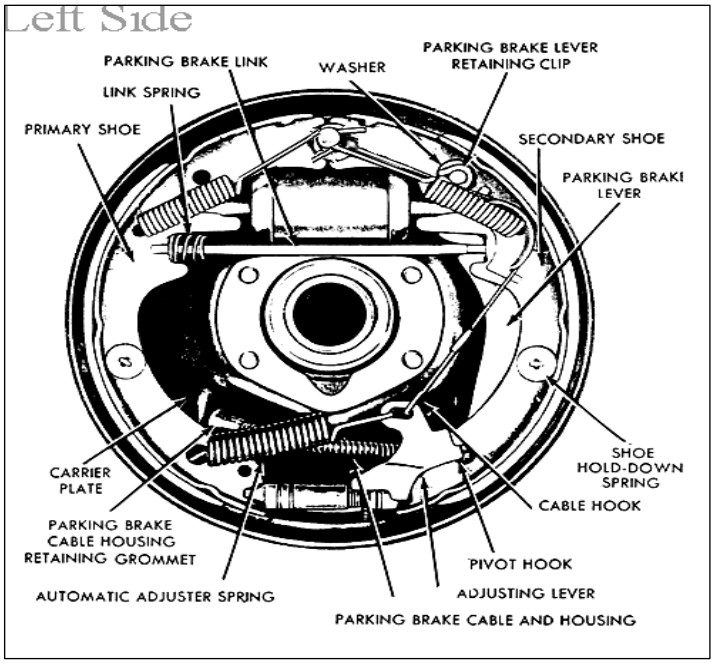
2. Clean the brake shoe assemblies with a quick evaporating liquid cleaning solution, **NEVER** with compressed air. Protect any nearby Painted Surfaces from the cleaning solution. Use Eye Protection. (See Fig. 1:). Examine the wheel cylinder for fluid leakage, and rubber caps for deterioration, or cracks. If any are found; the wheel cylinder needs to be Replaced, or Over Hauled. See the Wheel Cylinder Section of this Manual.

3. Contract the brake shoes by pulling the self-adjusting lever away from the star-wheel adjustment screw, and turn the star-wheel up, and back until the pivot nut is drawn onto the star-wheel as far as it will come. (See Fig. 2:)

Motor Trike® Roadhawk Wheel | Drum Brake Assy. | Brake Assy, Drum Removed

Drum Brake Parts Placement Diagrams.





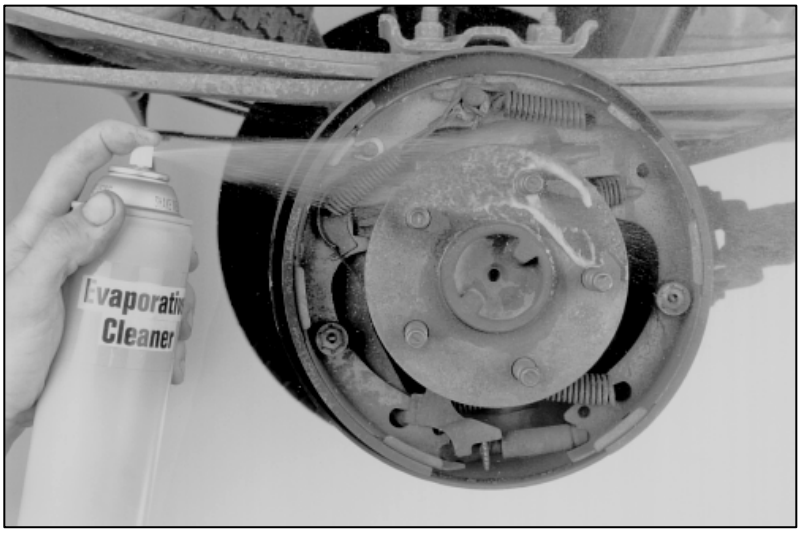


Fig. 1: Clean the brake shoe assemblies with a liquid cleaning solution, **NEVER** with compressed air. Use EYE Protection.

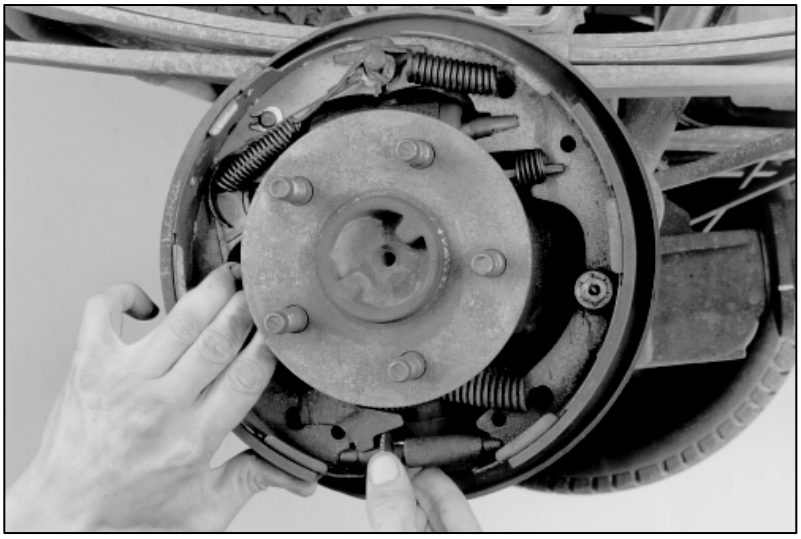


Fig. 2: To begin remove the brake shoes, pull the adjuster cable towards the shoe.

Fig. 3: Then disconnect the pivot hook from the adjusting lever. Wind the star-wheel all the way in.

4. Pull the adjusting lever, cable, and automatic adjuster spring down, and toward the rear to unhook the pivot hook from the large hole in the secondary shoe web. Do not attempt to pry the pivot hook from the hole. (See Fig. 3:)

5. Remove the automatic adjuster spring, and the adjusting lever. (See Fig. 4: & 5:)

6. Remove the primary shoe-to-anchor spring with a brake tool. (Brake tools are very common and are available at auto parts stores). Remove the secondary shoe-to-anchor spring, and unhook the cable anchor. Remove the anchor pin plate. (See Fig. 6: , 7: & 8:)

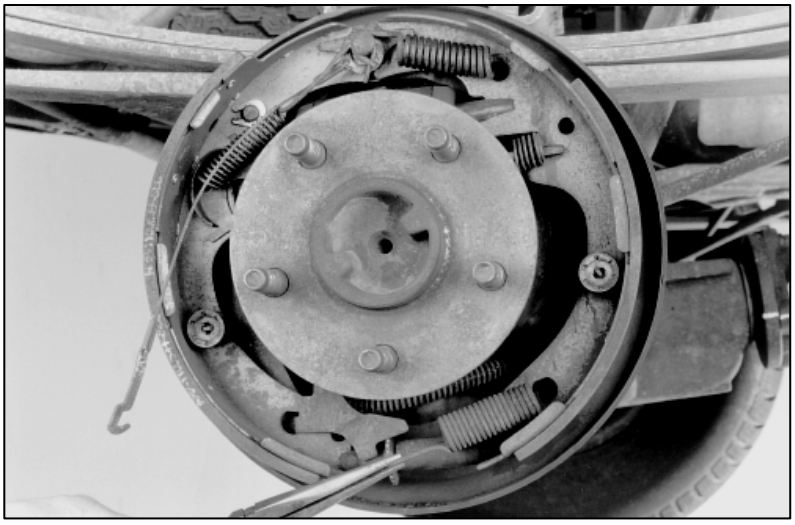


Fig. 4: Disconnect the adjuster lever return spring from the lever.

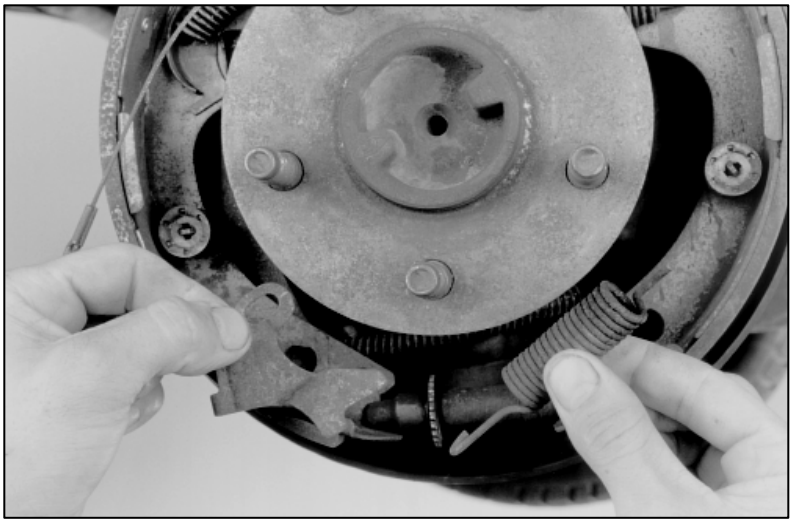


Fig. 5: Then remove the spring, and the lever.

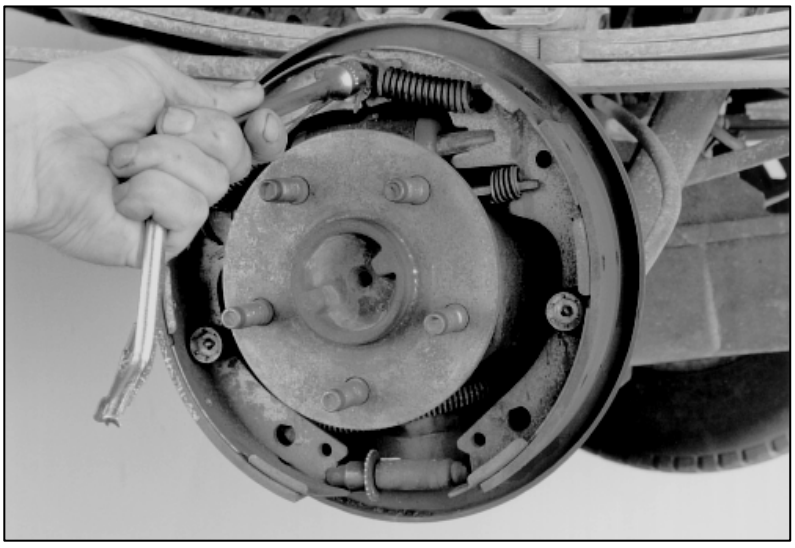


Fig. 6: Next, using a brake spring removal tool.

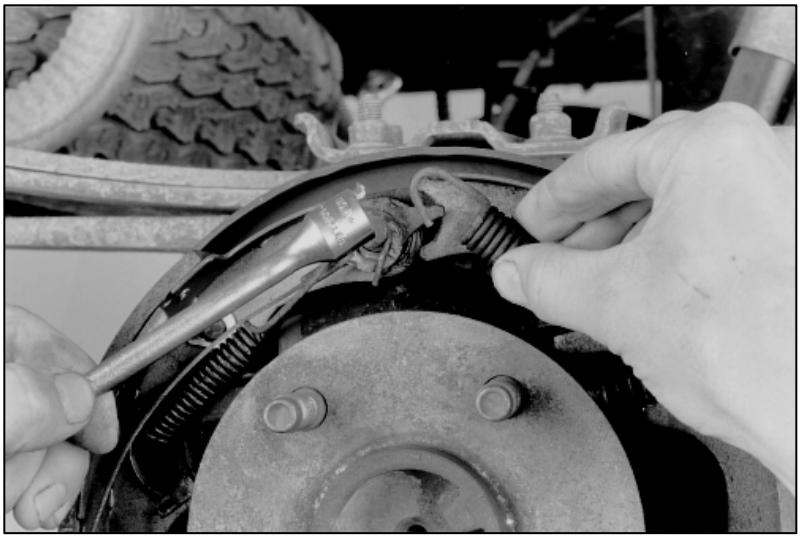


Fig. 7: Disconnect the primary brake shoe return spring from the anchor pin.

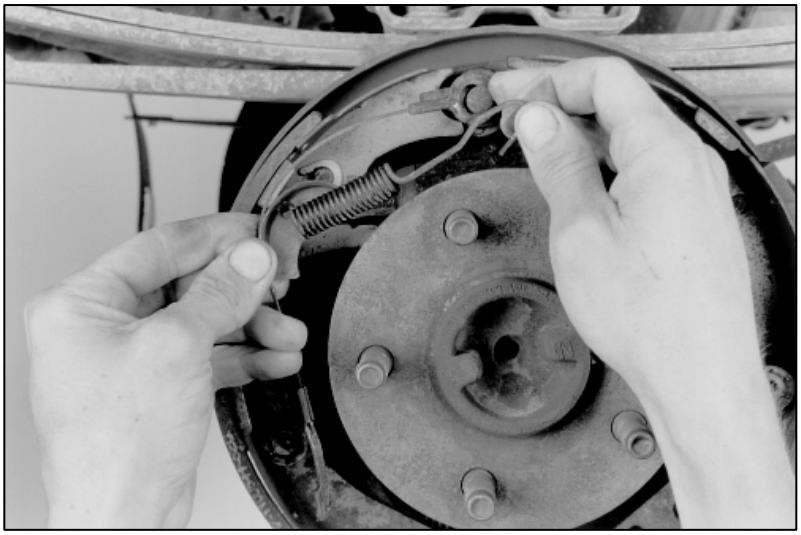


Fig. 8: Repeat the procedure, and remove the secondary return spring, adjuster cable, and its guide.

Fig. 9: Also remove the anchor pin plate.

7. Remove the cable guide from the secondary shoe. (See Fig. 8: , 9: & 10:)

8. Remove the shoe hold-down springs, shoes, adjusting screw, pivot nut, and socket. Note the color of each hold-down spring for reassembly. To remove the hold-down springs, reach behind the brake backing plate, and place one finger on the end of one of the brake hold-down spring

mounting pins. Using a pair of pliers, grasp the washer-type retainer on top of the hold-down spring that corresponds to the pin that you are holding. (See Fig. 11: & 12:) Push down on the pliers, and turn them 90° to align the slot in the washer with the head on the spring mounting pin. Remove the spring, and washer retainer, and repeat this operation on the hold-down spring on the other shoe. At this point the old shoes can be removed from the backing plate. (See Fig. 13:,- 16)

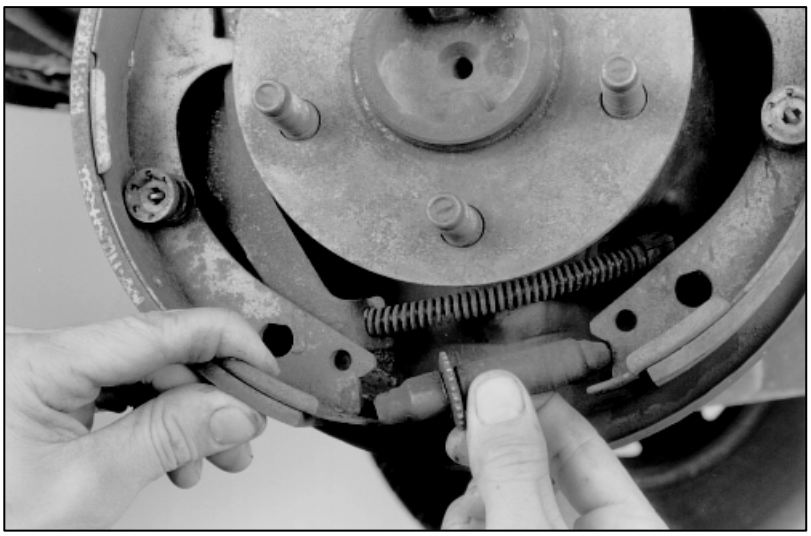


Fig. 10: Pull the bottoms of the shoes apart and remove the adjuster screw assembly.

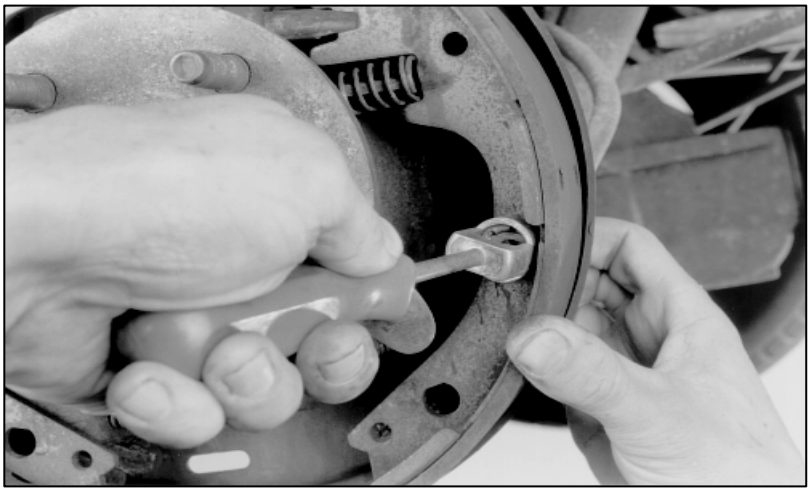


Fig. 11: Press in the hold-down springs while holding in on the nail from behind, then turn the cup 90º.

Fig. 12: Then release to remove the hold-down spring. Pull the nail out from the backing plate.

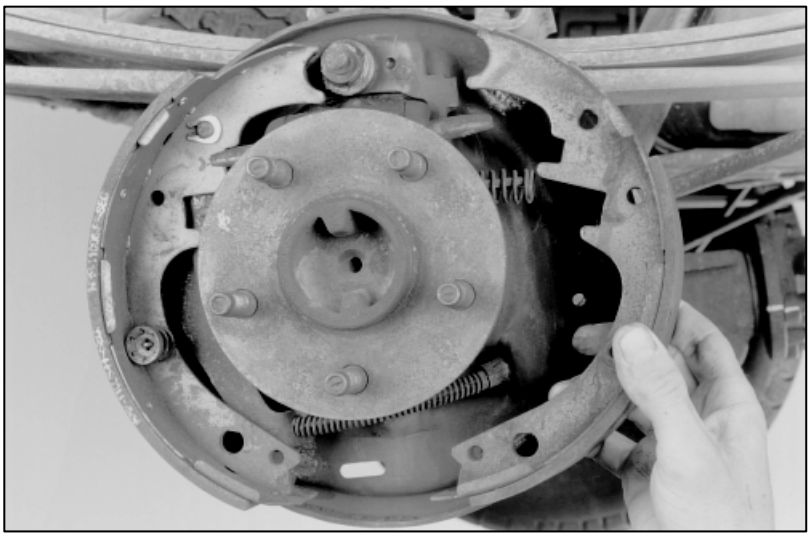


Fig. 13: Remove the primary (front) brake shoe from the backing plate.

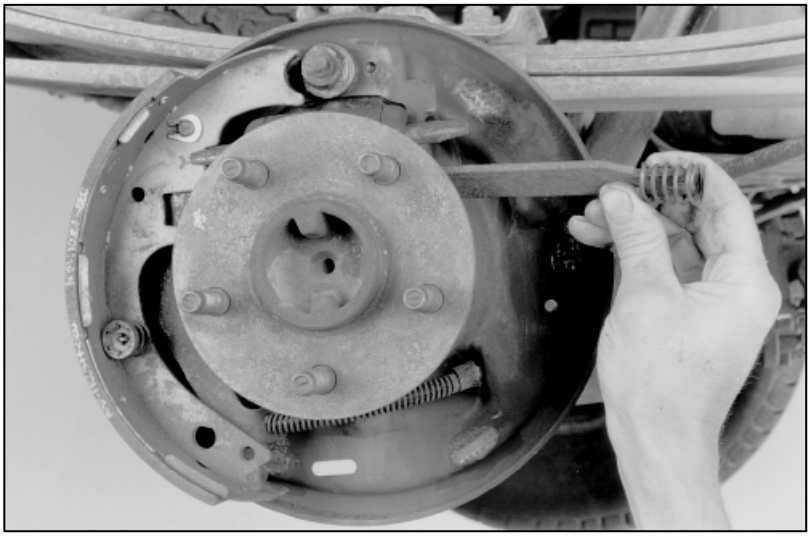


Fig. 14: then the parking brake strut as well. **This may or may not be installed on the Motor Trike ® brake system.**

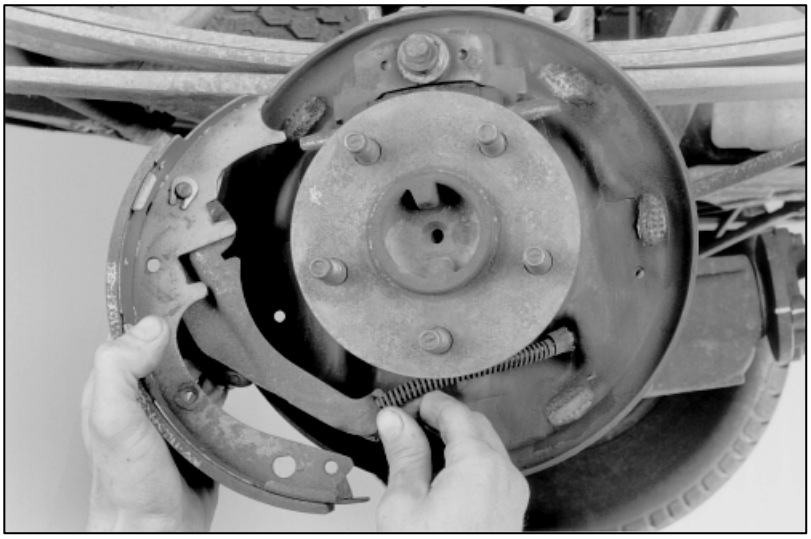


Fig. 15: Remove the secondary shoe hold-down; pull the shoe out then press up on the cable spring. **This may or may not be installed on the Motor Trike ® brake system.**

Fig. 16: ... and disconnect the parking brake cable from its lever by pulling it from the slot. **This may or may not be installed on the Motor Trike ® brake system.**

To Reassemble, and install New Brake Shoes:

See Figures 17 through 21

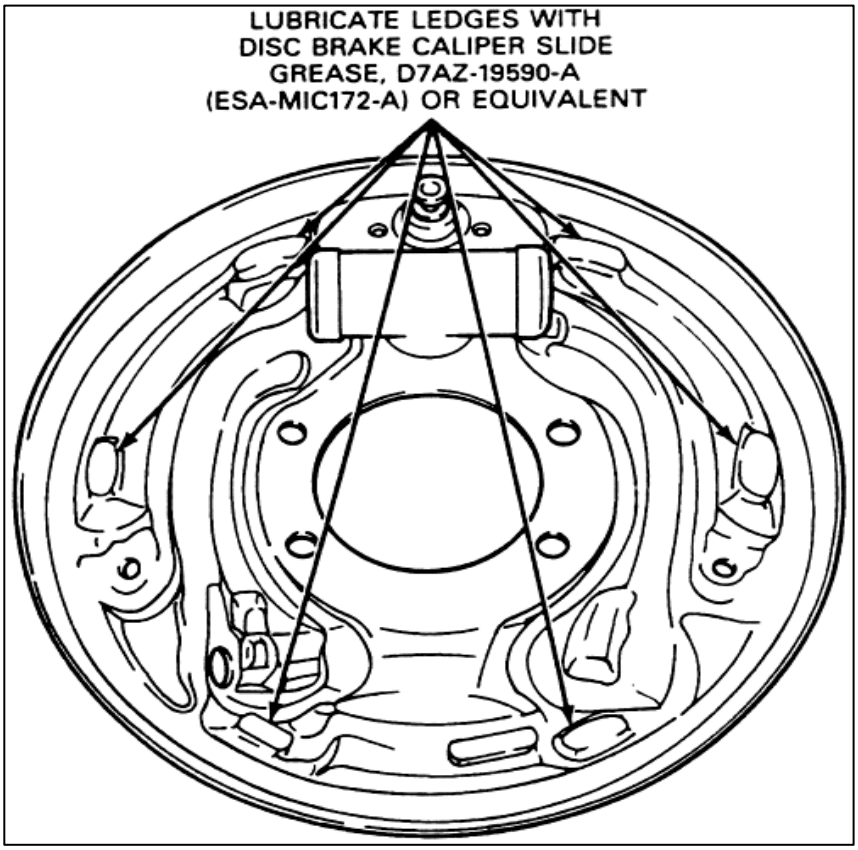


Fig. 17: Lightly apply the proper grade of lubricant to the points shown on the backing plate.

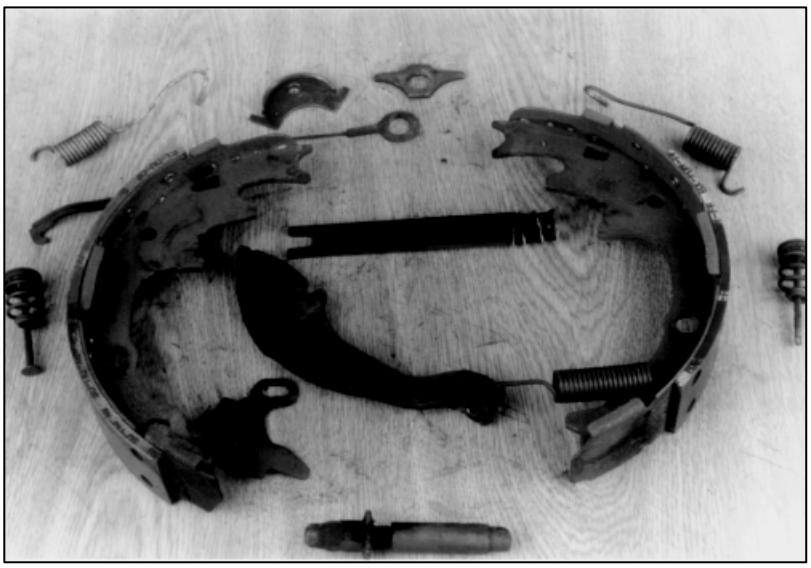


Fig. 18: This is a good reason to do only one side at a time. The multitude of parts can be daunting to reassemble from memory.

9. Assemble the parking brake lever to the secondary shoe and secure it with the spring washer, and retaining clip.

10. Apply a light coating of Lubriplate® (caliper slide grease) at the points where the brake shoes contact the backing plate. Be careful not to get any lubricant on the brake linings.

11. Position the brake shoes on the backing plate. The primary shoe (with the short lining) faces the front of the vehicle; the secondary, to the rear. Secure the assembly with the hold-down springs.

12. Install the anchor pin plate, and place the cable anchor over the anchor pin with the crimped side toward the backing plate. Install the primary shoe to the anchor pin.

13. Install the primary shoe-to-anchor spring with the brake tool.

14. Install the cable guide on the secondary shoe web with the flanged holes fitted into the hole in the secondary shoe web. Thread the cable around the cable guide groove. The cable must be positioned in the groove, and not between the guide, and the shoe web.

15. Install the secondary shoe-to-anchor (long) spring. Be sure that the cable end is not cocked, or binding on the anchor pin when installed. All of the parts should be flat on the anchor pin. Remove the wheel cylinder piston clamp.

16. Apply Lubriplate® (caliper slide grease) to the threads, and the socket end of the adjusting star-wheel screw. Turn the adjusting screw into the adjusting pivot nut to the limit of the threads, and then back off 1/2 turn.

CAUTION: Should you have taken both sides apart. Interchanging the brake shoe adjusting screw assemblies from one side of the Trike to the other would cause the brake shoes to retract rather than expand each time the automatic adjusting mechanism operated. To prevent this, the socket end of the adjusting screw is stamped with an R or an L for RIGHT or LEFT. The adjusting pivot nuts can be distinguished by the number of lines machined around the body of the nut; one line indicates left hand nut, and 2 lines indicates a right hand nut. (See Fig, 19:)

17. Place the adjusting socket on the screw, and install this assembly between the shoe ends with the adjusting screw toothed wheel nearest to the secondary shoe. Make sure the socket end of the adjusting screw, stamped with R or L, is correctly installed to the right or left side of the

Trike. The adjusting screw assemblies must be installed on the correct side for proper brake adjustment.

18. Place the cable hook into the hole in the adjusting lever from the backing plate side. The adjusting levers are stamped with an R (right) or an L (left) to indicate their installation on the right or left hand brake assembly.

19. Position the hooked end of the adjuster spring completely into the large hole in the primary shoe web. Connect the loop end of the spring to the adjuster lever hole.

20. Pull the adjuster lever, cable and automatic adjuster spring down toward the rear to engage the pivot hook in the large hole in the secondary shoe web.

21. Make sure the upper ends of the brake shoes are seated against the anchor pin, and the shoes are centered on the backing plate.

22. After installation, check the action of the adjuster by pulling the section of the cable between the cable guide, and the adjusting lever toward the secondary shoe web far enough to lift the lever past a tooth on the adjusting screw star-wheel. The lever should snap into position behind the next tooth, and release of the cable should cause the adjuster spring to return the lever to its original position. This return action of the lever will turn the adjusting screw star-wheel one tooth. The lever should contact the adjusting screw star-wheel one tooth above the center line of the adjusting screw.

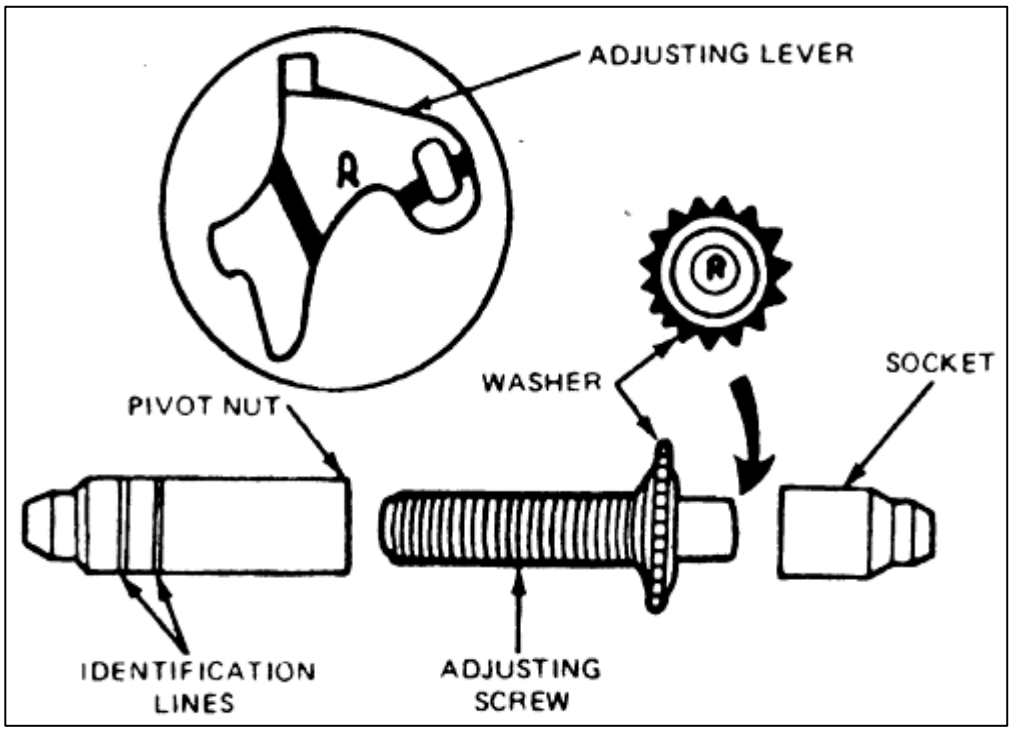


Fig. 19: Exploded view of a typical brake adjuster assembly.

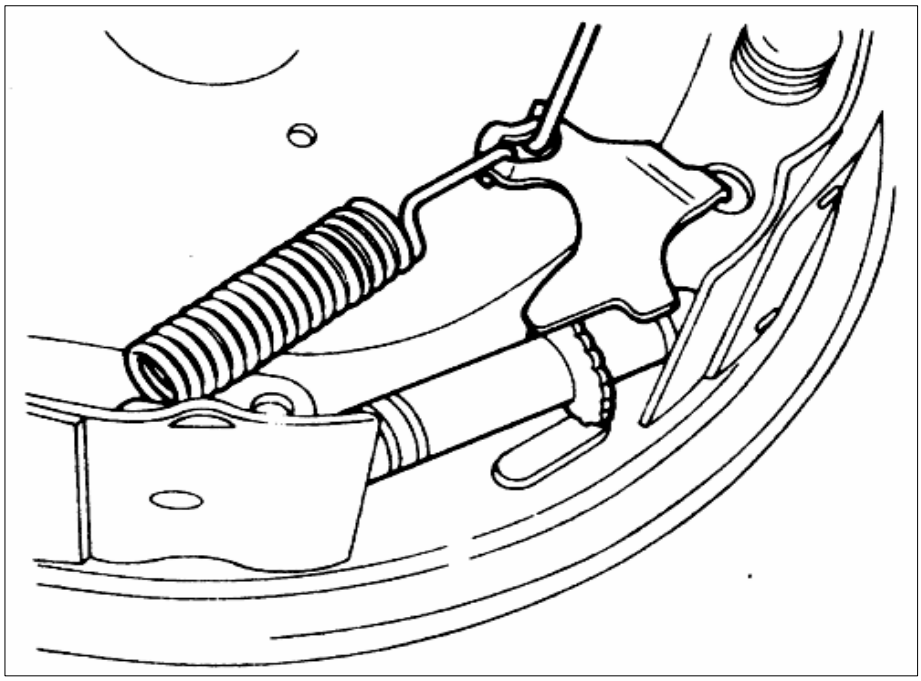


Fig. 20: The return spring and adjuster correctly installed.

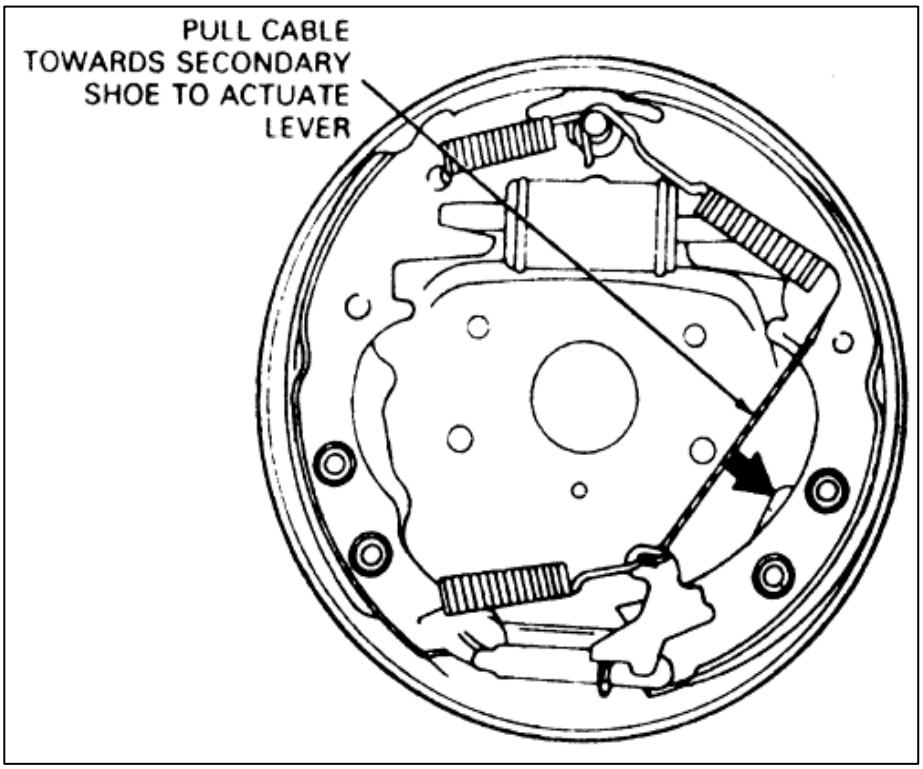


Fig. 21: Correct adjuster cable routing, “Left” side shown.

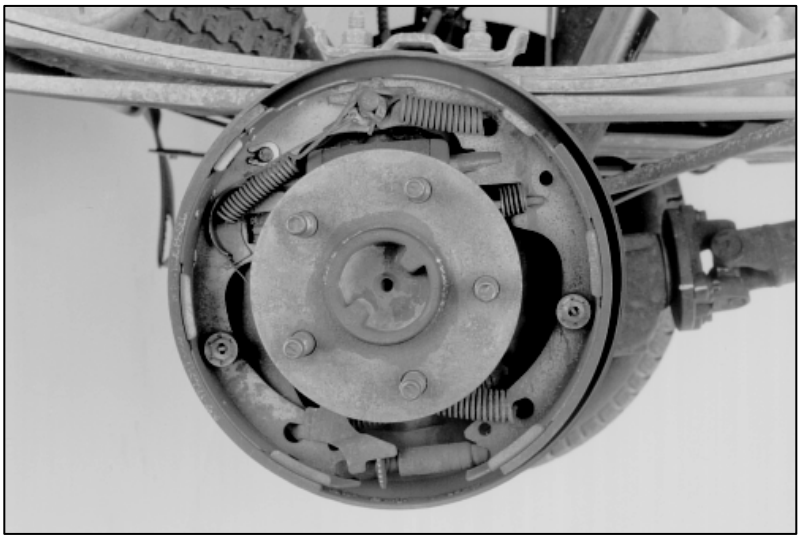


Fig. 22: View of the rear drum brake shoes completely assembled to the backing plate.

If the automatic adjusting mechanism does not perform properly, check the following:

23. Check the cable end fittings. The cable ends should fill or extend slightly beyond the crimped section of the fittings. If this is not the case, replace the cable.

24. Check the cable guide for damage. The cable groove should be parallel to the shoe web, and the body of the guide should lie flat against the web. Replace the cable guide if this is not so.

25. Check the pivot hook on the lever. The hook surfaces should be square with the body on the lever for proper pivoting. Repair or replace the hook as necessary.

26. Make sure that the adjusting screw star-wheel is properly seated in the notch in the shoe web.

ADJUSTMENTS

See Figures 23, 24, 25 and 26

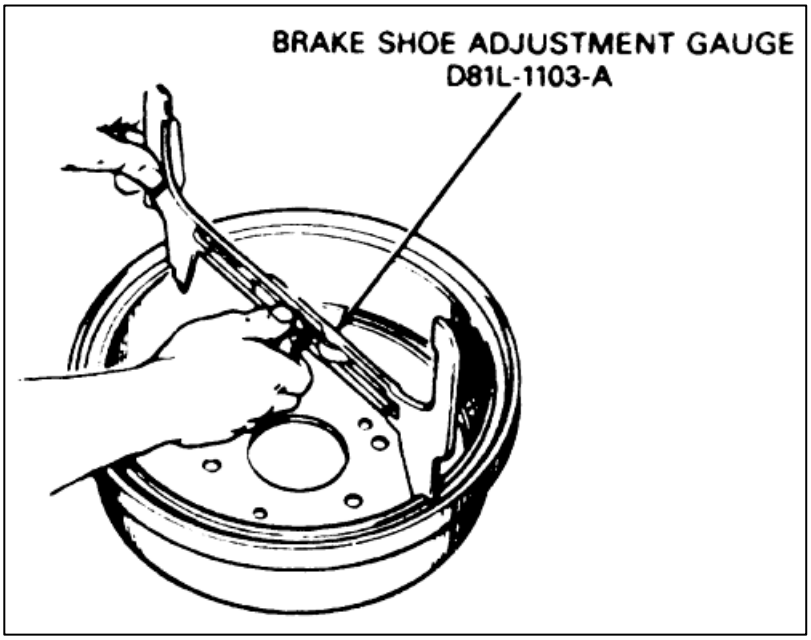


Fig. 23: Brake shoe adjustment gauge-Step 1

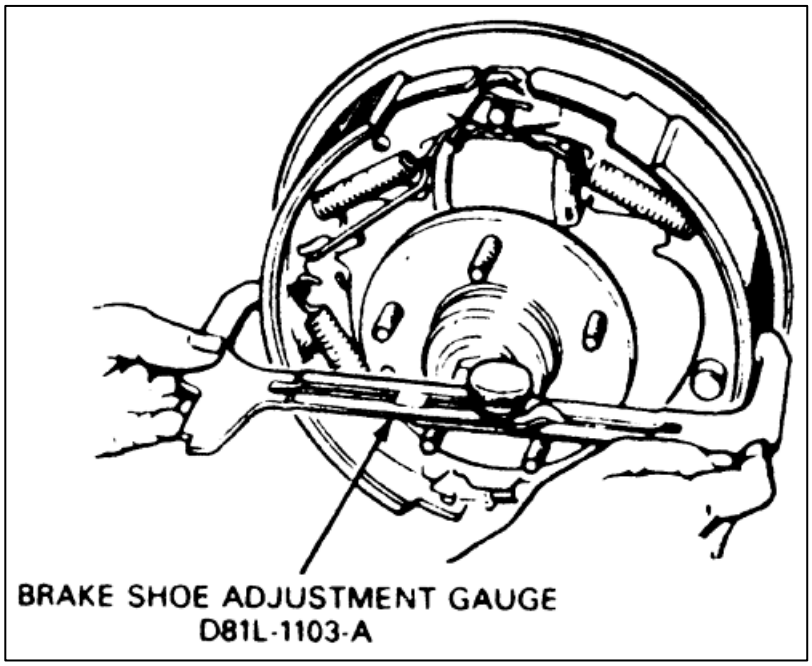


Fig. 24: Brake shoe adjustment gauge-Step 2

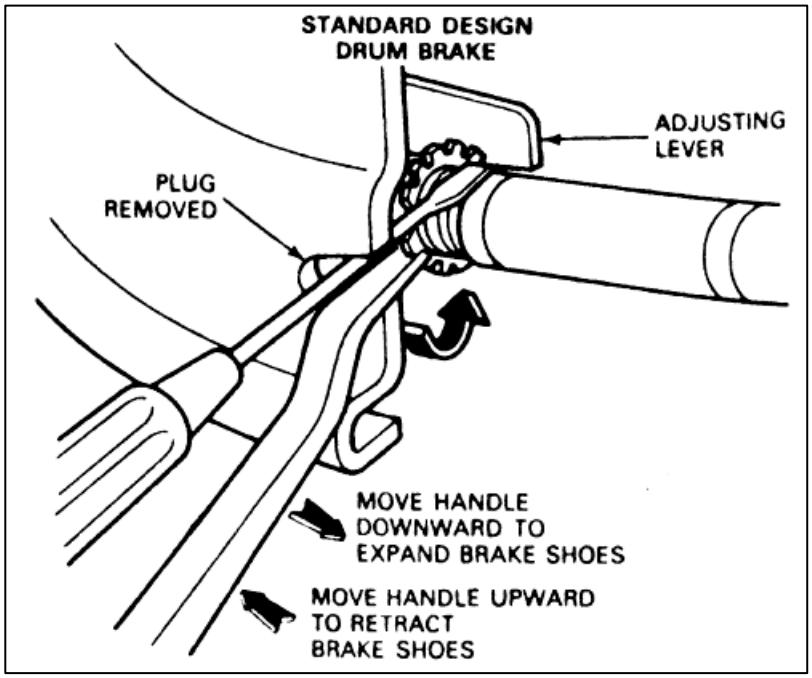


Fig. 25: Adjusting the rear brakes.

If you do not have access to the above mentioned Adjustment Gauge, Simply adjust the shoe pads out until they just fit into the drum.

27. Replace the Drum, and the Wheel, and proceed to the Adjustment phase, below.

NOTICE The drum brakes are self-adjusting, and require a manual adjustment only after the brake shoes have been replaced. ***However the Trike, due to its light weight, and inability to back up at a significant rate. Does Not fully utilize the Self-adjusting wheel. Manual Adjustments are periodically needed to maintain proper braking power.***

Fig. 26: Adjust the rear brakes with a flat bladed tool inserted in the access hole in the backing plate.

To adjust the rear brakes with wheels installed, follow the procedure given below:

1. Raise the Trike, and support it with Jack Stands. Both wheels must be off the ground, and the Trike in Neutral to allow the wheels to freely turn.

2. Remove the rubber plug from the adjusting slot on the backing plate.

3. Turn the adjusting screw using a Brake Shoe Adjustment Tool or equivalent inside the hole to expand the brake shoes until they drag against the brake drum, and lock the drum.

4. Insert a small screwdriver, or piece of firm wire (coat hanger wire) into the adjusting slot, and push the automatic adjusting lever out, and free of the star-wheel on the adjusting screw, and hold it there.

5. Engage the top most tooth possible on the star-wheel with the brake adjusting spoon. (See Fig 25) Move the end of the adjusting spoon **Upward** to move the adjusting screw star-wheel **Downward**, and contract the adjusting screw. Back off the adjusting screw star-wheel until the wheel spins **FREELY** with a minimum of drag about 10 to 12 notches. Keep track of the number of turns that the star-wheel is backed off, or the number of strokes taken with the brake adjusting spoon.

6. Repeat this operation for the other side. When backing off the brakes on the other side, the star-wheel adjuster must be backed off the same number of turns to prevent side-to-side brake pull.

7. When both drum brakes are adjusted, remove the safety stands, and lower the Trike.

8. Road test the Trike.

PERFORM THE ROAD TEST ONLY WHEN THE BRAKES WILL APPLY; AND THE TRIKE CAN BE STOPPED SAFELY!

Motor Trike ® Drum Brake, Wheel Cylinders
REMOVAL - OVERHAUL & INSTALLATION

CAUTION

Older brake pads or shoes may contain asbestos, which has been determined to be a cancer causing agent. Never clean the brake surfaces with compressed air! Avoid inhaling any dust from any brake surface! When cleaning brake surfaces, use a commercially available brake cleaning fluid.

⚠WARNING

You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

CAUTION

Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.

Always use Eye Protection when working with, and using Cleaning Solutions, and or Compressed Air.

SPECIAL NOTE

Photos used in this section show a 5 LUG Axle. The Motor Trike® has the 4 LUG Axle. The photos and diagrams were chosen for clarity. The parts placement and procedure is the same. Cretan items; like the Parking Brake connections, and associated hardware, may, or may not be in place. That depending on the Trike configuration, or installed Options.

REMOVAL & INSTALLATION

See Figures 1 and 2

1. Raise, and support the Trike, on Jack stands. Remove the wheel, and brake drum.

2. Remove the brake shoe assemblies. Refer to the previous section on Break Shoes.

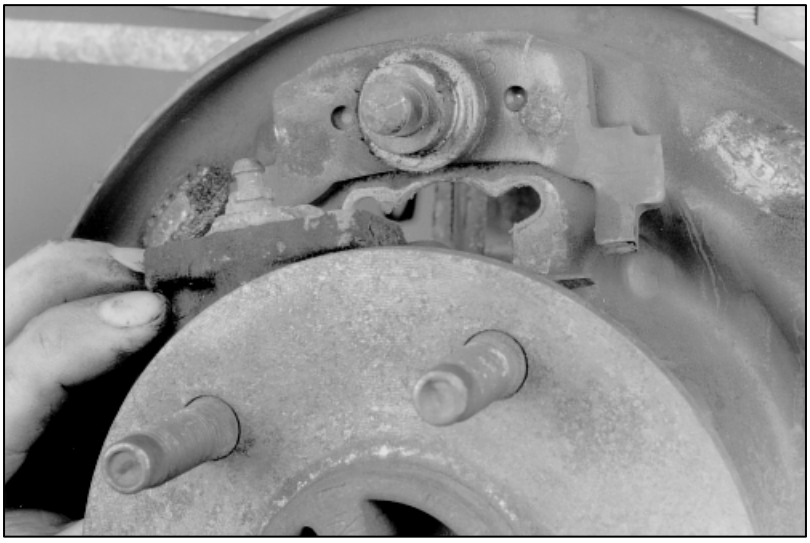


Fig. 1: Remove the brake shoes, and the brake line, then remove the bolts, and tilt the cylinder inwards.

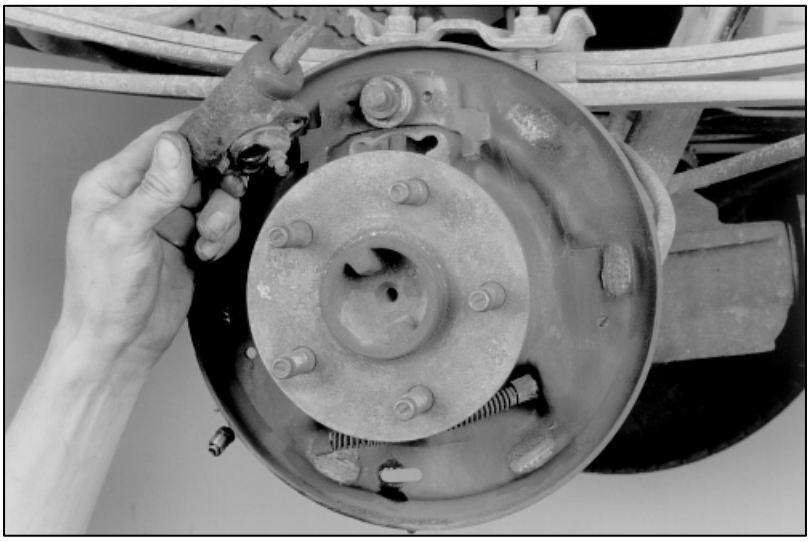


Fig. 2: ... then lift it up, and off of the backing plate.

3. Disconnect the brake line at the fitting on the back side of the brake backing plate.

4. Remove the screws that hold the wheel cylinder to the backing plate, and remove the wheel cylinder from the Trike.

5. Installation is the reverse of the above removal procedure. After installation bleed, and adjust the brakes as described earlier in this Section.

WHEEL CYLINDER OVERHAUL

See Figures 3 through 12.

Wheel cylinder overhaul kits may be available, but often at little, or no savings over a reconditioned wheel cylinder. It often makes sense with these components to substitute a new, or reconditioned part instead of attempting an overhaul.

If no replacement is available, or you would prefer to overhaul your wheel cylinders, the following procedure may be used. When rebuilding, and installing wheel cylinders; avoid getting any contaminants into the system. Always use clean, new, high quality brake fluid. **(DOT4 for the HONDA GL1800)** If dirty, or improper fluid has been used, it will be necessary to drain the entire system. Flush the system with proper brake fluid, **(DOT4)** replace all rubber components, then refill, and bleed the system. See Brake Bleeding Section.

1. Remove the wheel cylinder from the Trike, and place on a clean workbench.

2. First remove, and discard the old rubber boots, then withdraw the pistons. Piston cylinders are equipped with seals, and a spring assembly, all located behind the pistons in the cylinder bore. See Fig. 3

3. Remove the remaining inner components, seals, and spring assembly. Compressed air may be useful in removing these components. If no compressed air is available, be VERY careful not to score the wheel cylinder bore when removing parts from it. Discard all components for which replacements were supplied in the rebuild kit. See Fig. 4

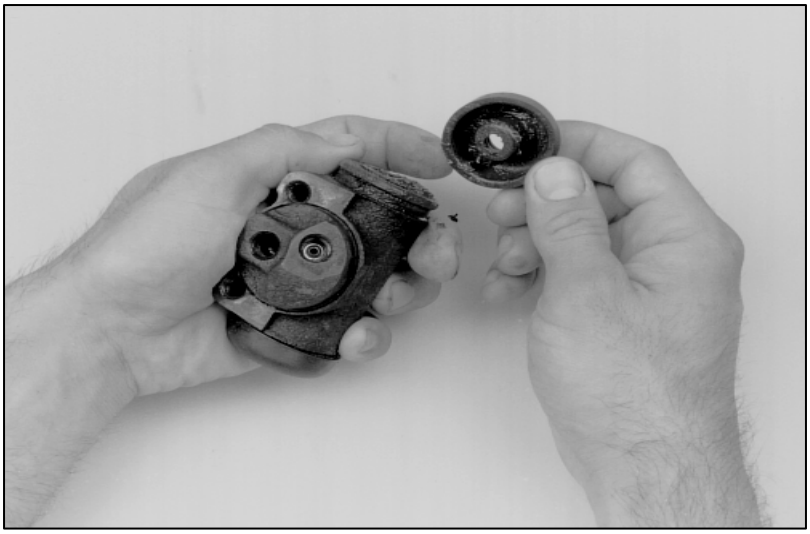


Fig. 3: Remove the outer boots from the wheel cylinder.

Fig. 4: Compressed air can be used to remove the pistons and seals. Use Eye Protection when working with Compressed Air.

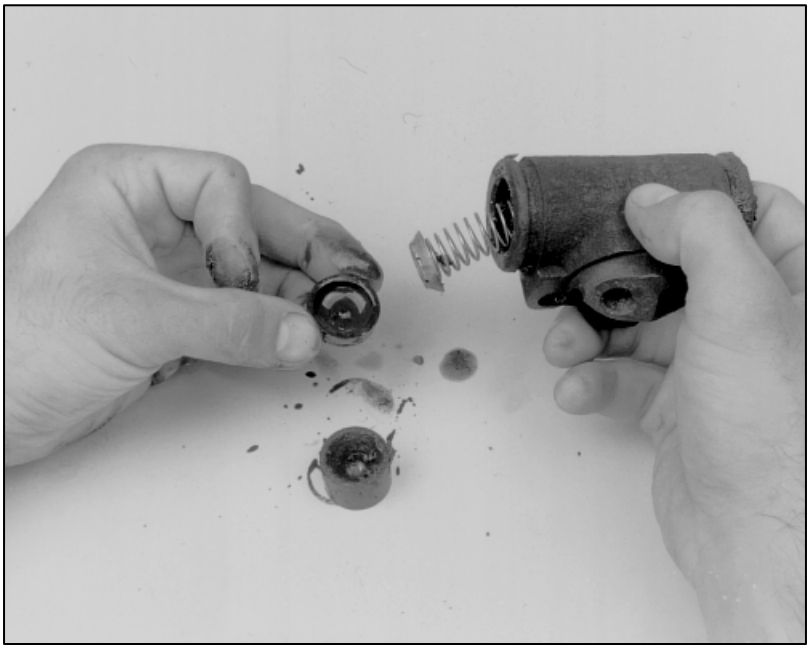


Fig. 5: Remove the pistons, cup seals, and spring from the cylinder.

WARNING

Never use a mineral-based solvent such as gasoline, kerosene or paint thinner for cleaning purposes. These solvents will swell rubber components and quickly deteriorate them.

4. Wash the cylinder, and metal parts in denatured alcohol, or clean brake fluid.

Fig. 6: Use brake fluid, and a soft brush to clean the pistons.

Fig. 7: ... and the bore of the wheel cylinder.

5. Allow the parts to air dry, or use compressed air. Do not use rags for cleaning, or drying, as lint will remain in the cylinder bore.

6. Inspect the pistons, and replace it if it shows scratches.

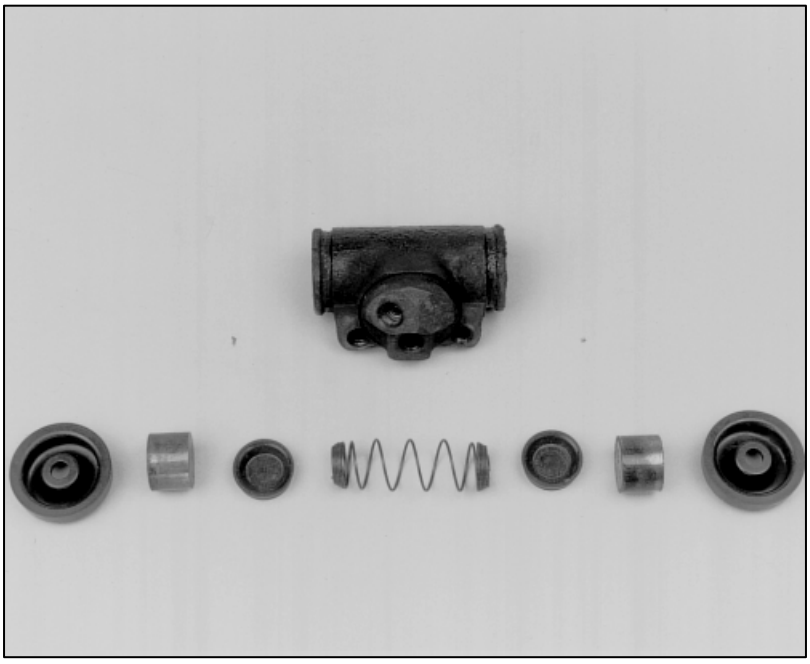


Fig. 8: Once cleaned and inspected, the wheel cylinder is ready for assembly.

7. Lubricate the cylinder bore, and seals using clean brake fluid.
8. Position the spring assembly.
9. Install the inner seals, then the pistons.

Fig. 9: Lubricate the cup seals with brake fluid.

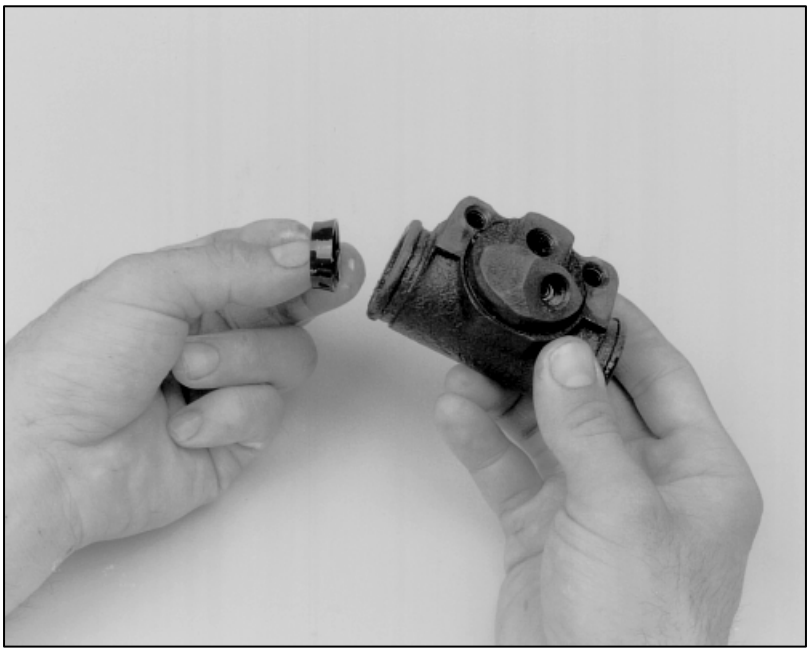


Fig. 10: Install the spring, then the cup seals in the bore.

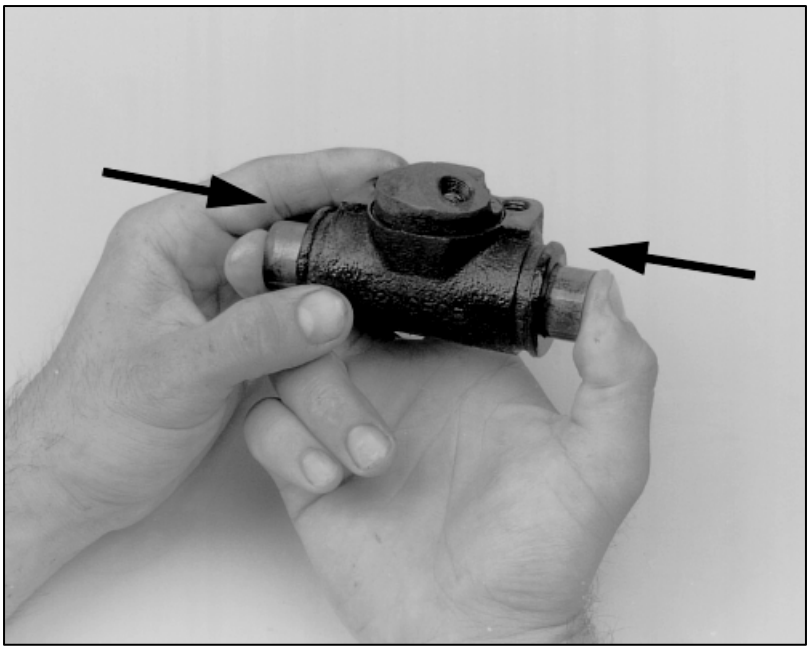


Fig. 11: Lightly lubricate the pistons, and then install them.

Fig. 12: The boots can now be installed over the wheel cylinder ends.

10. Insert the new boots into the counter-bores by hand. **Do not lubricate the boots.**

11. Install the wheel cylinder back onto the backing plate. Bleeding the system will be required, refer to the Brake Bleeding Section of this Manual.

NOTES

Bleeding the Motor Trike® Drum Brake Wheel Cylinders

Read the entire instructions before starting the bleeding procedure.
Before you start, be sure you have plenty of DOT 4 brake fluid on hand.

WARNING
Spilling Brake fluid can damage painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

Two people are required for this procedure.

Things that you should know before you start the bleeding procedure.

1: Do not allow foreign material to enter the system when filling the reservoir.

2: Avoid spilling fluid on painted, plastic, or rubber parts. Brake fluid can damage these parts. Place a rag over these parts whenever the system is serviced.

3: Use only DOT 4 brake fluid from a sealed container.

4: Do not mix different types of fluid. They are not compatible.

5: Once the Brake system has been opened, or if the brake feels spongy, the system must be bled.

Begin with the Left wheel.

Locate the bleeder screw at the rear of the drum brake wheel cylinder. Remove the rubber cap from the bleeder screw – and don't lose it!

Place a box-end wrench over the bleeder screw. An offset wrench works best – since it allows the most room for movement. If you do not have an offset wrench, avoid pushing the wrench head to the bottom of the bleeder screw – since the wrench may interfere with other parts during movement. Allow a standard wrench to sit near the top of the bleeder screw contact point.

Place one end of a rubber hose over the nipple of the bleeder screw.

Place the other end of the hose into a disposable bottle.

Place the bottle for waste fluid on the floor. Hold the bottle with one hand and grasp the wrench with the other hand.

Instruct your assistant to "apply." The assistant should pump the brake pedal three times, hold the pedal down firmly, and respond with "applied." Instruct your assistant not to release the brakes until told to do so.

Loosen the bleeder screw with a brief ¼ turn to release fluid into the waste line. The screw only needs to be open for one second or less. (The brake pedal will "fall" as the bleeder screw is opened. Instruct the assistant in advance not to release the brakes until instructed to do so.)

Close the bleeder screw by tightening it.

Instruct your assistant to "release" the brakes. Note: Do NOT release the brake pedal while the bleeder screw is open, as this will suck air back into the system!

Your assistant should respond with "released."

Inspect the fluid within the waste line for air bubbles.

Continue the bleeding process until air bubbles are no longer present. Be sure to check the brake fluid level in the reservoir after bleeding each wheel! Add fluid as necessary.

(Typically repeat this process 3-5 times per wheel. This will assure that any air in the line is expelled.)

Move to the Right wheel, and repeat the bleeding process. Be sure to keep a watchful eye on the brake fluid reservoir! Keep it full!

Test the brake pedal for a firm feel.

Be sure to inspect the bleeder screws, and other fittings for signs of leakage.
Replace the rubber caps on the bleeder valves.
Correct as necessary.

Important: used brake fluid should NEVER be poured back into the master cylinder reservoir!

NOTES

Motor Trike® Original
Disc Brake Pad Inspection and Replacement

CAUTION

Older brake pads or shoes may contain asbestos, which has been determined to be a cancer causing agent. Never clean the brake surfaces with compressed air! Avoid inhaling any dust from any brake surface! When cleaning brake surfaces, use a commercially available brake cleaning fluid.

CAUTION

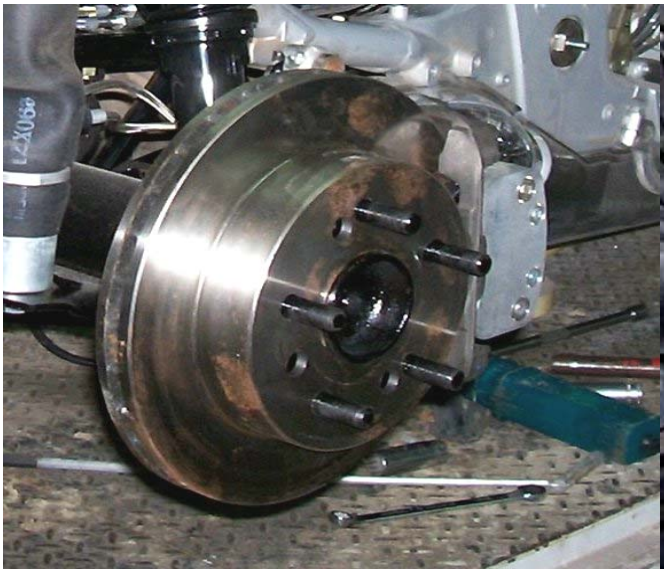
Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.

Always use Eye Protection when working with, and using Cleaning Solutions, and or Compressed Air.

First determine if you have the Original Disc Brake System. This is easy to do. Look at one of your rear wheels, and look to see where the caliper is located. The caliper is easily seen through the wheel slots. If you see the caliper on the front side of the rotor, or toward the front of the Trike, you have the Upgraded Brake System. Go to the New Style/Upgraded for 2006 and later section of this manual. If you see the caliper on the rear side of the rotor, toward the rear of the Trike, you have the Original Disc Brake System. Proceed with this section for brake pad replacement.

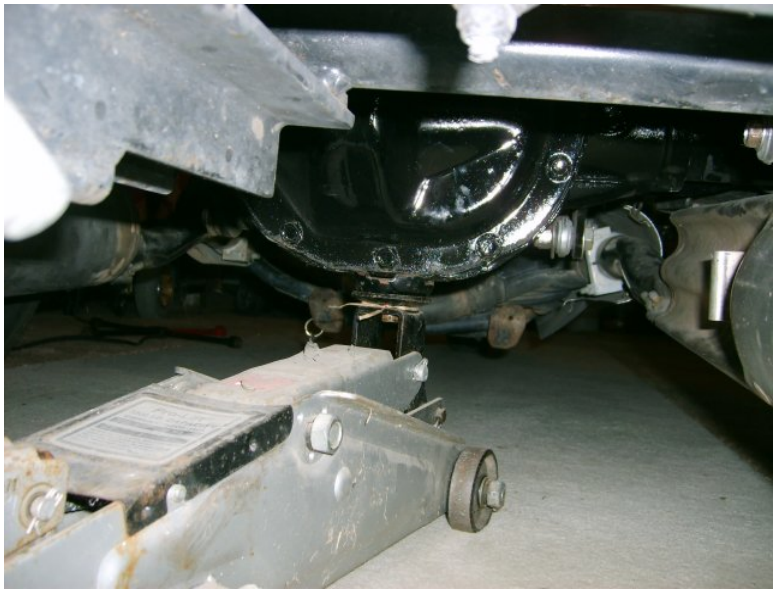
The Brake Pads used on the Motor Trike® Original Disc Brake System are NOT AVAILABLE through any Commercial Outlet, or Parts Store. You MUST obtain them from Motor Trike®. This is also true of the Caliper Assembly, and any associated parts. Call Motor Trike® at 1-800-908-7453 or 1-903-842-3094. They will ship the brake pads to you for little, or no cost.

New Disc Caliper Placement 2006 and later.



Original Disc Caliper Placement 2003 to 2006.

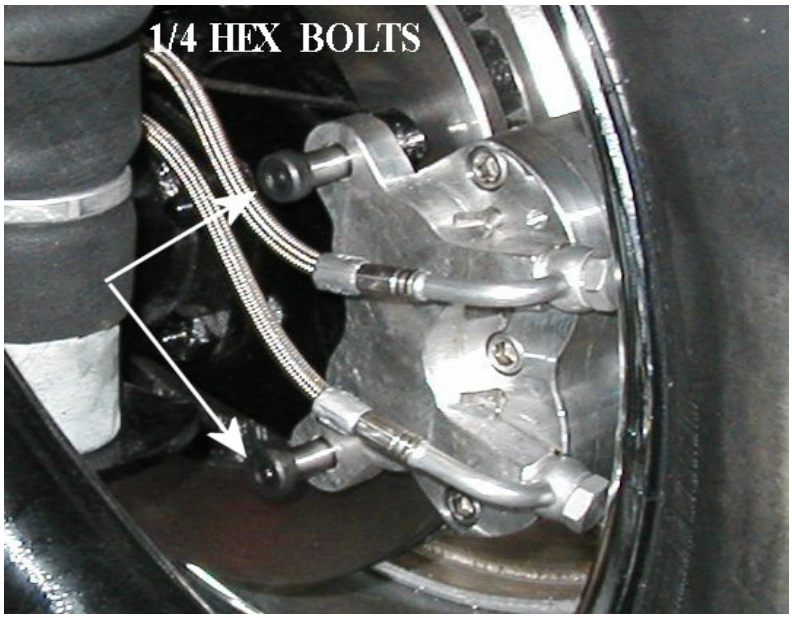
1. Remove the Lug Nut Cover, if so equipped, with a **# 3** Phillips screwdriver, on the rear wheel that is being removed. Be careful not to slip, and scratch the wheel. Loosen the lug nuts.



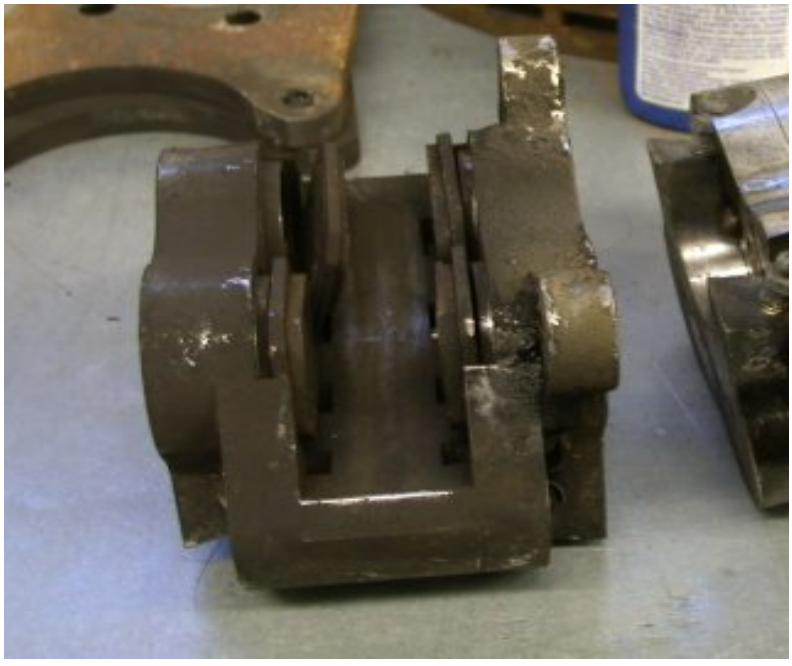
2. Raise, and support the Trike safely using Jack stands. The Centerstand can be used if still installed, and the front wheel is securely locked down. Jack stands should be utilized to stabilize Trike, and to prevent the Trike from falling, and causing Injury.

3. Jack Stand in place on the axle housing.

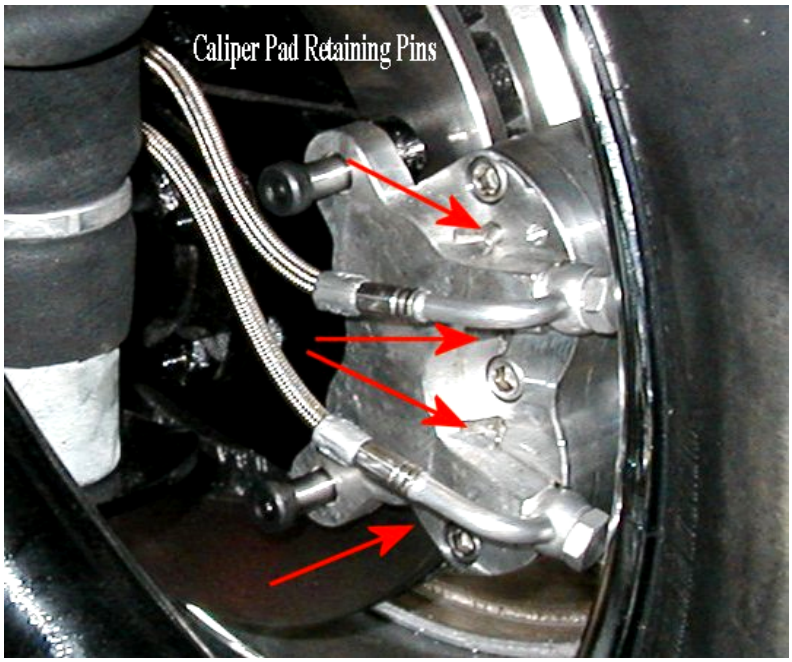
4. Remove the wheel.



5. Remove the Brake Caliper by removing the two 1/4" Hex bolts on the rear side of the caliper bracket.



6. Lift the caliper off the brake disc. There is enough brake line to turn the caliper upward. This will allow you to see the brake pads in the caliper. You will notice that there are four (4) pads in the caliper. Two on each side. (This caliper was removed for replacement)



7. Inspect the inside of the caliper for excessive brake dust, or generally dirty condition. See Photo in the above step # 6. To remove the pads bend in the 4 “Cotter Key” ends, remove the button head pins, and the pads will fall out. Notice that they will ONLY Fit properly one way, with the pad facing inward. Examine the brake pads for excessive ware, unusual marks, as in ridges, valleys, scoring, marring. Check pads for thickness, keep in mind that the original pads are not very thick. Replace the pads if needed.

NOTE
The original brake system pads should be replaced between 8,000 and 12,000 miles, depending on riding conditions. Sooner under harsh riding conditions.

Motor Trike® Original Disc Brake Pads

8. Clean the inside of the caliper (with the pads removed) with a Medium Stiff Bristle Brush to remove any dirt, and brake dust that has settled in the cups, and around the cup area. A good quality brake cleaning solution or spray cleaner can also be used to clean the caliper. “Use **Caution** to cover any Painted Surfaces that may come in contact with the cleaning solution.” Use Eye Protection.

9. The surface of the Rotor should be fairly smooth, is it shiny? If the pads were worn into the metal, your rotor will be scored. It will not be shiny, or smooth. Run your fingernails along the surface of the rotor, first the side facing you, then the side facing away. Is it scored? Deeply? This next point is very important. If the rotor has any deep grooves at all in it, it needs to be replaced at once. If the groves are not extremely deep, the rotors may be able to be Turned (Re-surfaced). The rotor at this point will just slide off the wheel hub. Take it to an Auto Parts store, or Auto Machine Shop that will have a surfacing machine. They will be able to tell you if it can be re-surfaced, or needs to be replaced. If the rotor can not be resurfaced. Contact Motor Trike® for a replacement. Remember there is a 3 Year, 60,000 mile WARRANTY. Photo below shows deep scoring.

10. Place the new pads into the caliper; remember the pad material faces each other. Reinsert the 4 button head pins from the outside of the caliper (the side without the brake lines). Spread the “Cotter Key” Pin ends out to hold the pads in place.

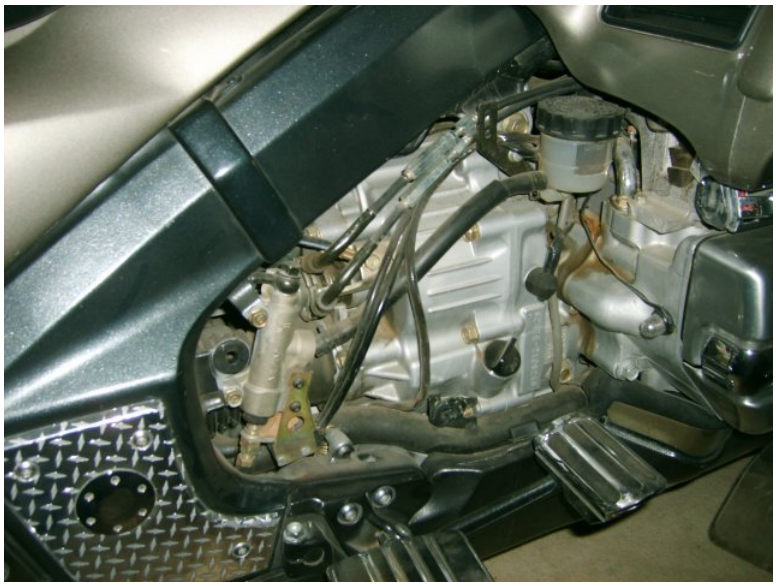
11. The caliper pistons will need to be pushed back into the frame. This can generally be accomplished by pushing them back with your thumbs. If they are stiff, a thin block of wood and large Pliers may be needed to push them back. Loosening, or removing the Rear Master Reservoir Cap; located behind the Right Engine side cover, may be required. Closely check the fluid level in the reservoir. If the fluid level is at or near the Upper (Full) mark. You may have to drain small amounts of the fluid, to allow room for pad replacement. This is normally not the case but may be required. See WARNING: in No: 13 when handling, and using Brake Fluid. Place the caliper back onto the rotor. Check to be sure that you have “Not Twisted” the brake lines while replacing the caliper.

12. Reinstall the 1/4” Hex bolts, and torque to 45 - 50 Ft lbs.

13. Now that the caliper and pads have been replaced, you will need to check the brake peddle for firmness. If it seems a little soft you may have to bleed the brake system. First check the rear brake reservoir for the proper fluid level. That procedure is described below.

WARNING

Spilling Brake fluid can damage painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.



Remove the right engine side cover.

Check the fluid level in the rear brake reservoir. If the level is near the “LOWER” level line, remove the reservoir cap, and diaphragm. Fill the reservoir with DOT 4 brake fluid from a sealed container to the “UPPER” level line. Install the diaphragm, and reservoir cap. Reinstall the right engine side cover.

Should the brake system need to be bled refer to the following for “Bleeding GL1800 Spyder Original Disc Brakes” If not, reinstall the wheels, and Carefully remove the Jack stands, and lower the Trike.

Road test the Trike to insure brake peddle is firm, and the brakes are solid. Bleeding or re-bleeding may be required. Do Not Ride the Trike with a SOFT Brake Pedal.

BLEEDING GL1800 SPYDER ORIGINAL DISC BRAKES

Read the entire instructions before starting the bleeding procedure.
Before you start, be sure you have plenty of DOT 4 brake fluid on hand.

WARNING
Spilling Brake fluid can damage painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

NOTICE
References to the Front Brakes are completely covered in the HONDA™ Service Manual. Front brake components, and any associated parts ARE NOT part of the Motor Trike® Conversion Kit, Therefore ARE NOT be covered by Motor Trike® Warranty. For complete Service Information and Proper procedures refer to the HONDA™ Service Manual that is for your particular GL1800 Year Model.

Things that you should know before you start the bleeding procedure.

1: A highly worn or contaminated brake disc or pad reduces stopping power. Replace worn or contaminated pads, and clean a contaminated disc with a high quality brake cleaner.

2: Do not allow foreign material to enter the system when filling the reservoir.

3: Avoid spilling fluid on painted, plastic, or rubber parts. Brake fluid can damage these parts. Place a rag over these parts whenever the system is serviced.

4: Use only DOT 4 brake fluid from a sealed container.

5: Do not mix different types of fluid. They are not compatible.

6: Once the Brake system has been opened, or if the brake feels spongy, the system must be bled.

7: When using a commercially available brake bleeder, (Mity-Vac, or similar) follow the manufacturer's operating instructions.

Two people are required for this procedure.

1. Put the Trike on jack stands in the rear. Using a jack under the engine, raise the front end high enough that the front forks are extended out to their full length. The front wheel can be off the ground, or just touching the ground.

2. With the tires off the Trike, remove the calipers from rear end, and move them both to the top of the rotor. Open both bleeders on the right side. Be prepared for fluid and air to spit out (have a rag handy). Once it quits leaking, press the rear pedal briskly but not too fast; just enough to see which valve is your primary, and which is your secondary. Your primary will be the one with the most pressure (as far as releasing fluid). If the front valve is your primary on the right, then it is also your primary on the left. After you figure out which is which, you want to bleed your secondary valves first. Keeping the valves on the very top of the rotor still using the slow firm pump.

NOTE: Marking the Primary bleeder with a scribe, or making note of it in the manual. Will assist in determining which bleeder is which for future bleeding procedures.

3. After all of the air is out of the secondary valves on the right and left sides, go up to the front, and bleed the anti-dive plunger. It is attached directly to the left front fork. This also works off the front fork. When the bike's front starts to dive, the anti-dive starts to transfer fluid to the rear of the bike to make the stop more balanced, and in a shorter distance. This is why you need to raise the front so the anti-dive receives the amount of fluid needed. You bleed the anti-dive plunger with the same slow firm pumps of the rear break pedal. Refer to the Honda™ Service Manual for this as the front fender will have to be removed.

4. Next, you bleed the primary valve in the back using the same procedure as the secondary valve using the same slow firm pumps. At this point you should have a decent pedal, but you are not done yet. There is probably still air in the line. What you do now is repeat the same sequence of bleeder valves, but you pump the rear pedal very hard, and a little faster than before. The reason you can't start the bleeding procedure by pumping hard is because there is so much air in the line that the hard faster pumping will make the fluid foam, and make it much more difficult to get the air out.

5. When you break the valves loose after the harder faster pumps, you want to release the valves very fast so you're pumping, and releasing as much volume, and pressure as possible.

KEYS TO SUCCESS

1. Moving the rear calipers to the top of the rotor.

2. Read these directions, and the directions from the GL1800 Honda™ Service manual, for the proper instructions on bleeding the Anti-Dive Unit.

3. After you have followed this procedure; ride the Tike. The o-rings on the calipers will seat over a 20 - 50 mile period giving you even a better pedal.

NOTES

Disc Brake Pad Inspection and Replacement
"New Style 2006 Upgrade, and Later"

CAUTION

Older brake pads or shoes may contain asbestos, which has been determined to be a cancer causing agent. Never clean the brake surfaces with compressed air! Avoid inhaling any dust from any brake surface! When cleaning brake surfaces, use a commercially available brake cleaning fluid.

General Brake Disc Information

A disc brake assembly is composed of the following elements: a caliper, two brake pads, a rotor, and some bolts, and clips to hold it all together.

The caliper's job is to squeeze the brake pads toward a centrally located metal plate -- the rotor -- producing friction, which in turn slows the Trike. Think of a hand slowly clamping down on a spinning record.

The brake pads hover on either side of the metal plate. They attach to the inside of the caliper, with clips. They are composed of heat-resistant material that rubs against the rotor. When the brakes are applied, the pads move toward one another, gripping the rotor between them, and slowing the wheels.

Brake Pads require a clean, smooth, flat surface on the rotors, otherwise brake performance will suffer. A rough surface will accelerate pad wear, and increase the risk of noise. An uneven surface or variations in rotor thickness can cause vibrations, noise, and annoying brake pedal pulsations. Brake disc that have grooves, or any kind of damage should be replaced immediately.

Any brake parts that are out of specification, worn or damaged should always be replaced to restore brake performance, and safety to like-new condition.

CAUTION

Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.

Always use Eye Protection when working with, and using Cleaning Solutions, and or Compressed Air.

PART NAME	PART NUMBER	ALT Number
BRAKE PAD	MKD545	D347
BRAKE DISC	N/A Motor Trike® Item	N/A

⚠WARNING

You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

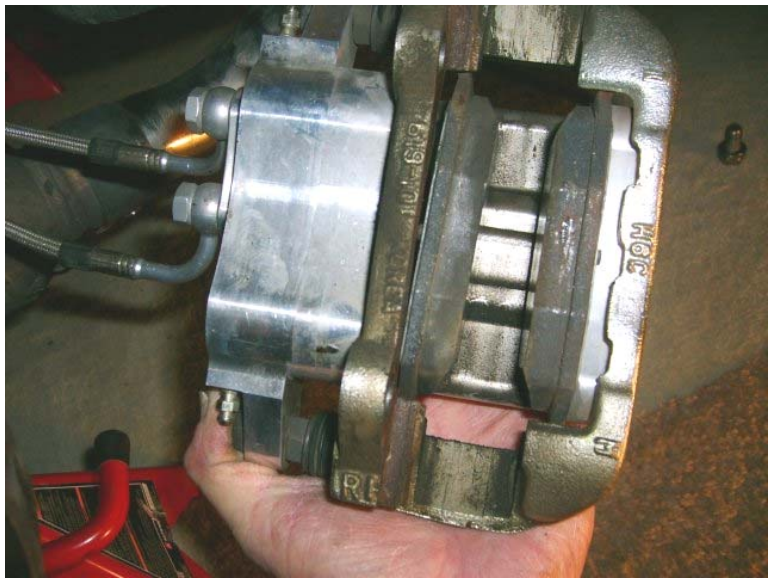
1. Remove the Lug Nut Cover, if so equipped, with a **# 3** Phillips screwdriver, on the rear wheel that is being removed. Be careful not to slip, and scratch the wheel. Loosen the lug nuts.

2. Raise, and support the Trike safely using jack stands. The Centerstand can be used if still installed, and the front wheel is securely locked down. Jack stands should be utilized to stabilize Trike, and to prevent the Trike from falling, and causing Injury.

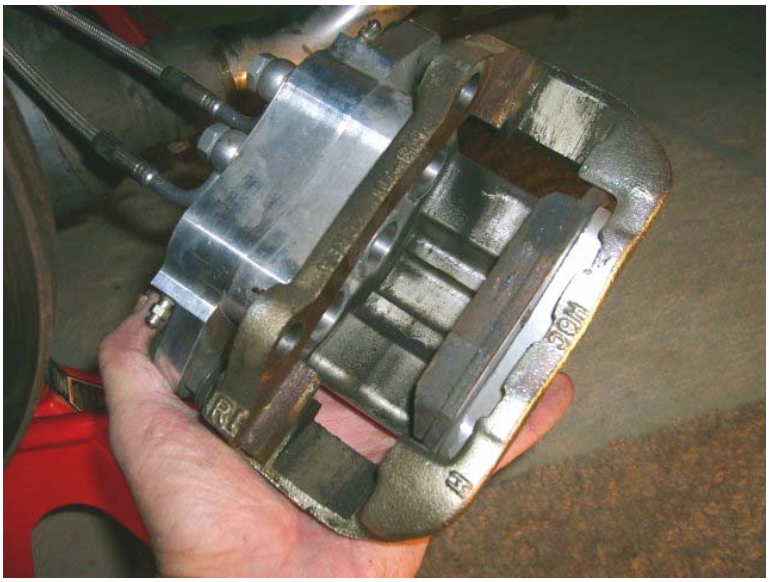
3. Jack Stand in place on the axle housing.

4. Remove the wheel.

5. Remove the Brake Caliper by removing the two ¾" bolts on the rear side of the caliper bracket.



6. Lift the caliper off the brake disc. There is enough brake line to turn the caliper upward. This will allow you to see the brake pads in the caliper.



7. Inspect the inside of the caliper for excessive brake dust, or generally dirty condition. Remove the pads by lifting them out of the caliper. Notice that they will ONLY Fit in one direction, and there is a spring holding clip on the Top Side. Examine the brake pads for excessive ware, and thickness, or unusual marks on the surface of the pad, as in a ridge, or a valley (for scoring or marring). Replace the pads if needed.

Disc Brake Pads

Rear (Notice the Piston marks)

Front Side Toward Rotor

8. Clean the inside of the caliper (with the pads removed) with a Medium Stiff Bristle Brush to remove any dirt, and brake dust that has settled in the cups, and around the cup area. A good quality brake cleaning solution or spray cleaner can also be used to clean the caliper. "Use **Caution** to cover any Painted Surfaces that may come in contact with the cleaning solution." Use Eye Protection.

9. Lay the pads aside, and inspect the rotor. The surface of the Rotor should be fairly smooth, is it shiny? If the pads were worn into the metal, your rotor will be scored. It will not be shiny, or smooth. Run your fingernails along the surface of the rotor, first the side facing you, then the side facing away. Is it scored? Deeply? This next point is very important. If the rotor has any deep grooves at all in it, it needs to be replaced at once. If the groves are not extremely deep, the rotors may be able to be Turned (Re-surfaced). The rotor at this point will just slide off the wheel hub. Take it to an Auto Parts store, or Auto Machine Shop that

will have a surfacing machine. They will be able to tell you if it can be re-surfaced, or needs to be replaced. If the rotor can not be resurfaced. Contact Motor Trike® for a replacement. Remember there is a 3 Year, 60,000 mile WARRANTY. Photo below shows deep scoring.

10. If all is in good shape, place the pads back into the caliper, and place the caliper back onto the rotor. Check to be sure that you have “Not Twisted” the brake lines while replacing the caliper. Now Skip to No: 12.

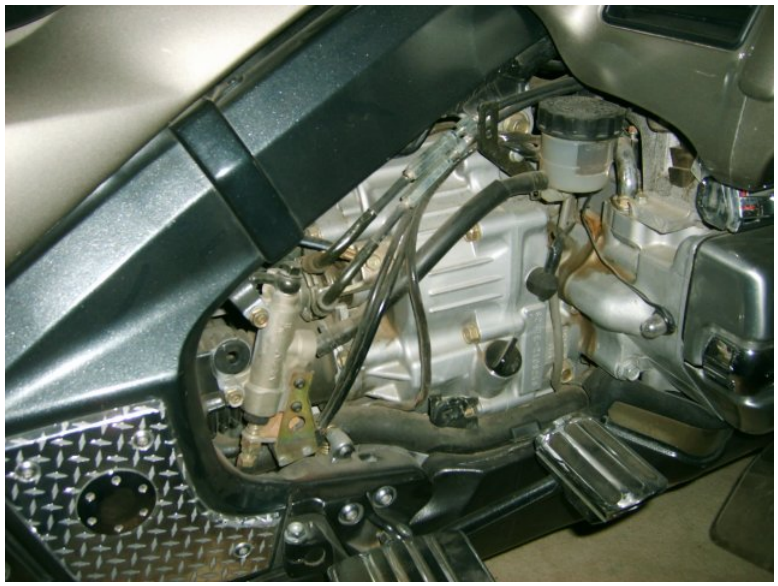
11. If you are replacing the pads with NEW Pads, the caliper pistons will need to be pushed back into the frame (there are three pistons) this will allow the caliper assembly to slip back onto the rotor. This can generally be accomplished by pushing them back with your thumbs. If they are stiff, or out past 3/8” a thin block of wood and large Pliers may be needed to push them back. Loosening, or removing the Rear Master Reservoir Cap; located behind the Right Engine side cover, may be required. Closely check the fluid level in the reservoir. If the fluid level is at or near the Upper (Full) mark. You may have to drain small amounts of the fluid, to allow room for pad replacement. See WARNING: in No: 13 when handling, and using Brake Fluid. Replace the pads in the caliper, and place the caliper back onto the rotor. Check to be sure that you have “Not Twisted” the brake lines while replacing the caliper.

12. Reinstall the ¾” bolts, and torque to 55 - 65 Ft lbs.

13. Now that the caliper and pads have been replaced, you will need to check the brake pedal for firmness. If it seems a little soft you may have to bleed the brake system. First check the rear brake reservoir for the proper fluid level. Follow the procedure described below.

WARNING

Spilling Brake fluid can damage painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.



Remove the right engine side cover.

Check the fluid level in the rear brake reservoir. If the level is near the “LOWER” level line, remove the reservoir cap, and diaphragm. Fill the reservoir with DOT 4 brake fluid from a sealed container to the “UPPER” level line. Install the diaphragm, and reservoir cap. Reinstall the right engine side cover.

Should the brake system need to be bled refer to the following for “2006 Upgraded Brake Bleeding Procedure” If not, reinstall the wheels, and Carefully remove the Jack stands, and lower the Trike.

Road test the Trike to insure brake pedal is firm, and the brakes are solid. Bleeding or re-bleeding may be required. Do Not Ride the Trike with a SOFT Brake Pedal.

BLEEDING PROCEDURE FOR NEW STYLE GL1800 MOTOR TRIKE® BRAKE CALIPERS
(2006 Upgrade and Later)

NOTE: The brake pedal has to be moved UP one notch on the Master Cylinder Pivot Arm to be able to apply the right amount of pressure during riding. This most likely has already been done, at installation or upgrade. If NOT, Reposition the Pedal before continuing.

> **To do this, the pinch bolt on the rear brake pedal must be completely removed to enable the pedal arm to be removed from the Master Cylinder Pivot Arm. Before removing the pedal arm, mark its position with a pencil. Remove the pedal arm, and reposition it back onto the Pivot Arm; UP one Notch from the mark that was made. Seat the arm back into place, and replace the pinch bolt, and tighten securely.**

Be sure to have plenty of DOT 4 Brake Fluid on hand.

****This procedure requires Two People.****

Raise Trike off ground, ALL 3 WHEELS. Use Jack Stands in the Rear, and a suitable Jack or support for the Front of the Trike. The front must have the struts (Forks) unloaded to take pressure off the Anti-dive.

DO NOT USE A POWER BLEEDER (MITY-VAC or SIMILAR) IT WILL NOT WORK FOR THIS APPLICATION.

Removing the rear wheels is not essential, but it will make this procedure much easer to perform.

MASS BLEEDING:

1. **Start at the caliper furthest from the T fitting on the axle. Left caliper from the back of the Trike.**

2. **When bleeding the system attach your bleeder hose to the bleeder screw at the "TOP" of the caliper. Bleed until no air is trapped in the lines. When no air is coming through close the bleeder screw.**

3. **Attach bleeder hose to the bleeder screw, 2nd from the top. Bleed as listed above. (The bottom 2 bleeder valves are NOT bled)**

4. **Repeat this process for the other side. (Right Side)**

Once the system is "MASS BLED" you will need to pressure bleed the system as well; using the above process.

PRESSURE BLEEDING:

Pressure bleeding is done by pumping the brake pedal briskly about 7 to 10 times, and holding strong pressure while the bleeders are just cracked open. Do the top 2 bleeders on each side as was done with the mass bleeding. Refer to Steps 1 thru 4.

Check Rear pedal for firmness. Replace the wheels if removed, and carefully remove the Jack Stands, and the Front support. Road test the Trike to insure brake pedal is firm, and the brakes are solid. Repeating may be necessary.

NOTES

Rear Axle Shaft, Bearing, and Seal Replacement

The Motor Trike® Kit for the Honda GL 1800, Spyder, and Spyder 2+2 utilizes the Ford 7.5 Rear Differential and is modified by Motor Trike® to their specifications. The first picture is the Motor Trike® modified differential, all other photos, and diagrams depicted here are NOT of the Motor Trike® Rear Assembly and is used as a General Parts location, for removal, and replacement procedure guide only. Dis-assembly, removal, and replacement are exactly the same for the Motor Trike® modified differential.

Important Information:

The Motor Trike® Spyder/2+2 Trike Kits have a 3 Year, 60,000 Mile Warranty. Before you proceed with any repairs; check with Motor Trike® to determine if the repair may be covered through their Dealer/Installer Network under warranty. Unauthorized repair could present Warranty Issues.

Motor Trike® Rear Assembly

COMPONENT LOCATION (GENERAL)

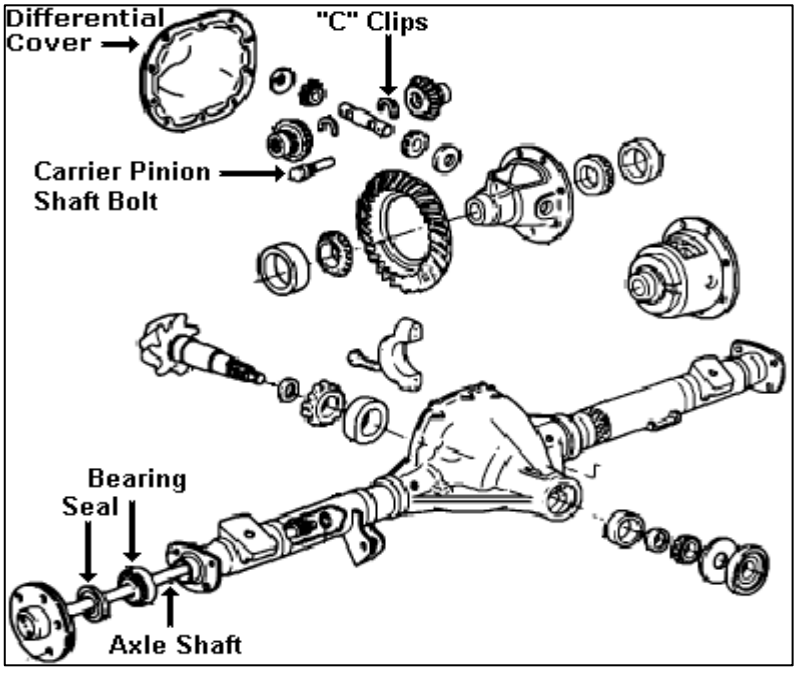


Fig. 1: Exploded view of the rear axle assembly. For part location reference ONLY.

SERVICE INFORMATION

GENERAL

• Riding on damaged rims impairs safe operation of the Trike.
• A contaminated brake disc, or pad reduces stopping power. Discard contaminated pads, and clean a contaminated disc with a high quality brake degreasing agent.
• A lift, or equivalent (Jack stands) are required to support the Trike when servicing the Rear wheel.

TROUBLESHOOTING

Excessive noise

• Worn or scored pinion, and splines
• Worn pinion, and ring gears
• Excessive backlash between pinion, and ring gears
• Oil level too low

Oil leakage

• Clogged breather
• Oil level too high
• Damaged seals
• Loose case cover bolts

PARTS LISTING FOR THE 7.5 FORD REAREND, USED IN THE MOTOR TRIKE® GL1800 SPYDER TRIKE KIT.

PART NAME	PART NUMBER
U JOINT	369 (PRECISION)
U JOINT	1-0153 Fed-Mogul(WAGNER)
Yoke	2-4583 Fed-Mogul(WAGNER)
Flange	2-2939 Fed-Mogul(WAGNER)
AXLE SEAL	8660S (NATIONAL Oil Seal)
REAR COVER GASKET	RDS55081 (FED PRO)
PINION SEAL	PT3604 (NATIONAL Oil Seal)
AXLE BEARING	R1563 (FED MOGLE)

REMOVAL & INSTALLATION

⚠WARNING

You CAN be KILLED, or SERIOUSLY INJURED
Never work under any vehicle that is not properly supported.

CAUTION
Always use jack stands. Never attempt to work on an elevated Trike held in place only by a hydraulic jack.

1. Loosen the lug nuts on the rear wheel that is being removed.

2. Raise, and support the Trike safely using jack stands. Centerstand can be used if still installed, and the front wheel is securely locked down. Jack stands should be utilized to stabilize Trike, and to prevent the Trike from falling, and causing Injury.

3. Remove the wheel, and then remove the rear brake caliper, and rotor. Or Drum if so equipped. See Brake System Section for Caliper/Drum removal, and reassembly.

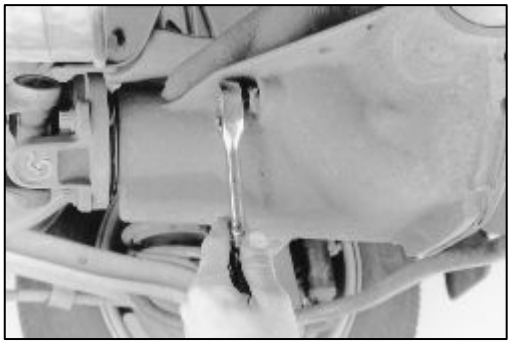
4. Clean all dirt from the area of the axle housing cover. Drain the axle lubricant by removing the housing cover. Remove all but the top two bolts on the cover until the lubricant has drained. A large catch pan will be required to catch the lubricant.

5. Remove the differential pinion shaft lock bolt, and pinion shaft.

6. Push the flanged end of the axle shaft toward the center of the Trike (to create the necessary play, and free the C-lock), then remove the C-lock from the button end of the axle shaft.

7. Slowly withdraw the axle shaft from the housing.

8. If the seal is being replaced (or if you damaged it on the way out) insert a wheel bearing, and seal replacement tool, such as T85L-1225-AH or equivalent, in the bore, and position it behind the bearing so the tangs on the tool engage the bearing outer race. Remove the bearing, and seal as a unit, using an impact slide hammer. ***NOTE:*** *If only the seal is being replaced, use a seal removal tool to pry ONLY THE SEAL from the axle housing.*



<Fig. 2: Remove the housing's fill plug

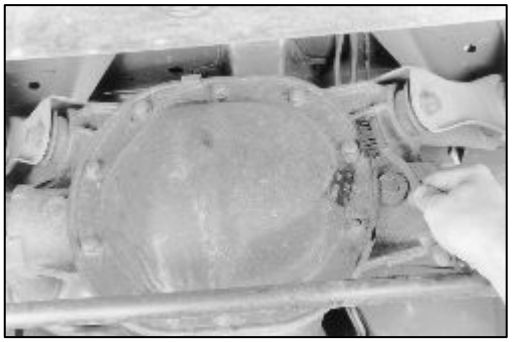
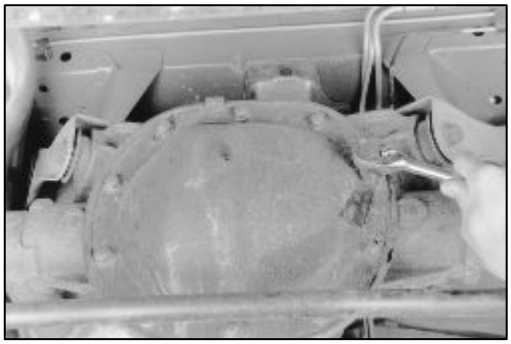


Fig. 3: Clean all dirt, and debris from the cover to prevent it from entering the differential. >



<Fig. 4: Remove all but one, or two upper mounting bolts from the axle housing cover.

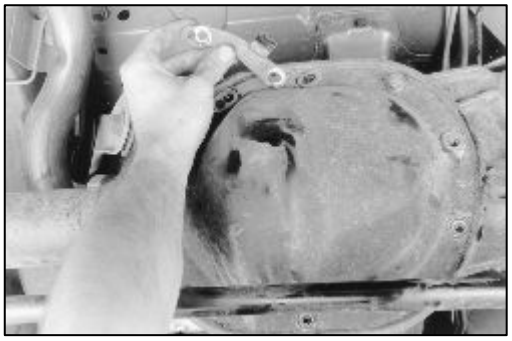


Fig. 5: Remove any brake hose brackets from the cover >

<Fig. 6: Pry the cover away from the housing, and allow the fluid to drain.

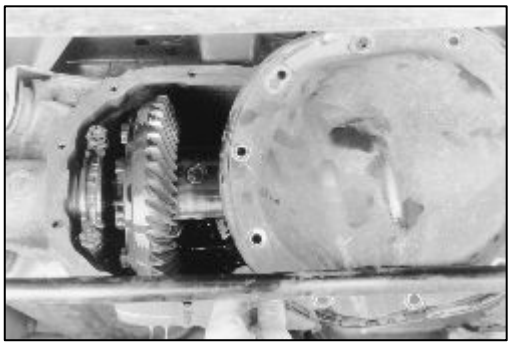
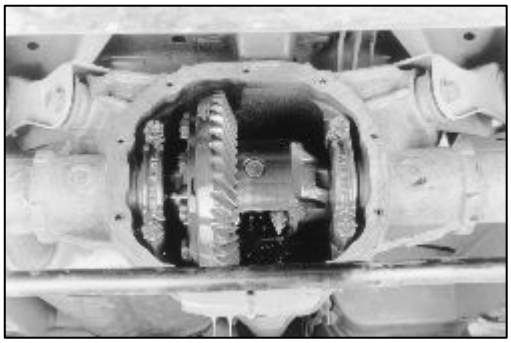


Fig. 7: Remove the cover >



<Fig. 8: Once the cover is removed, the differential unit can be accessed

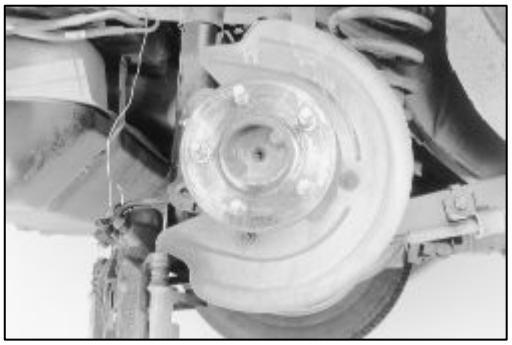
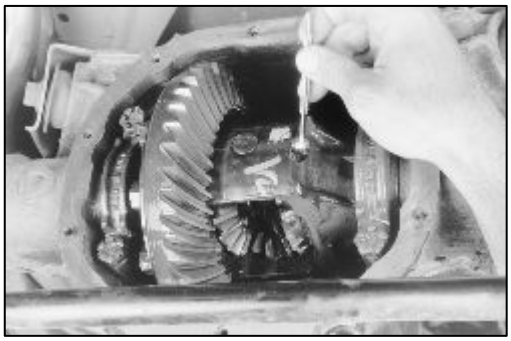


Fig. 9: Remove the wheel, brake caliper, and brake rotor from the rear axle. >



<Fig. 10: Loosen the pinion shaft lock bolt.

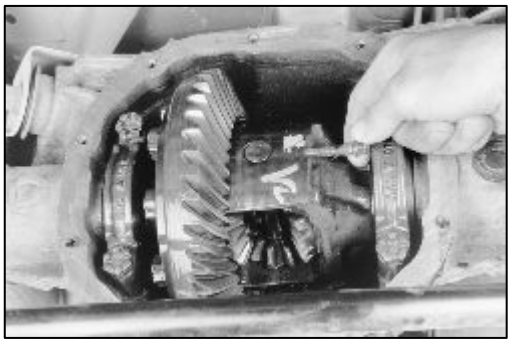
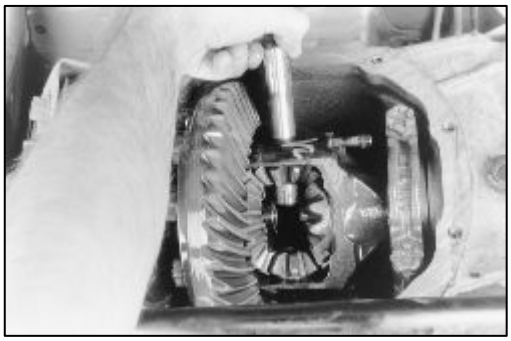


Fig. 11: Pull it out enough to clear the pinion shaft. >



<Fig. 12: Pull the pinion shaft out of the differential unit.

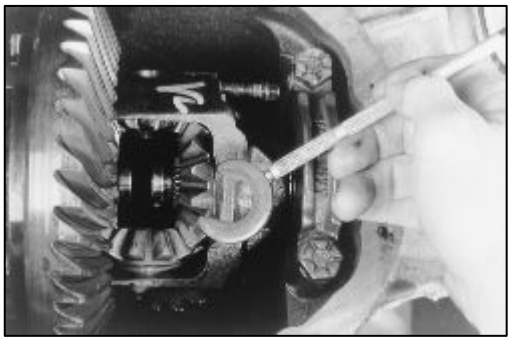


Fig. 13: Push the axle shaft in, and remove the C-clip retainer. >

<Fig. 14: Carefully pull the axle shaft out of the axle housing.

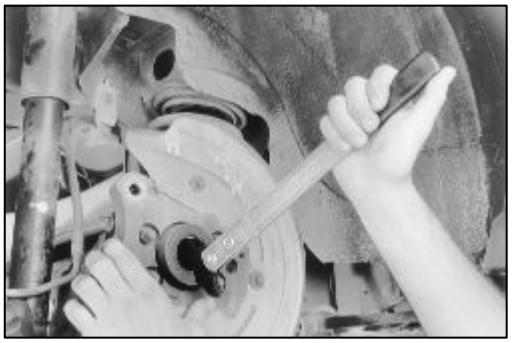


Fig. 15: Remove, and replace the axle shaft oil seal at this time-be careful not to damage the seal bore. >

To install:

1. If removed, lubricate the new bearing with rear axle lubricant. Install the bearing into the housing bore with a bearing installer.

2. Install a new axle seal using a seal installer. Essentially, the installation tool is a driver of the right diameter; a smooth socket, or piece of pipe can also be used as a driver, just be careful not to damage the seal.

Fig. 16: Use a properly-sized driver to install a new oil seal into the axle shaft housing

Check for the presence of an axle shaft O-ring on the spline end of the shaft; install one if none is found.

3. Carefully slide the axle shaft STRAIGHT into the axle housing, without damaging the bearing, or seal assembly. Start the splines into the side gear, and push firmly until the shaft splines engage. It may be necessary to rotate the axle slightly to align the splines.

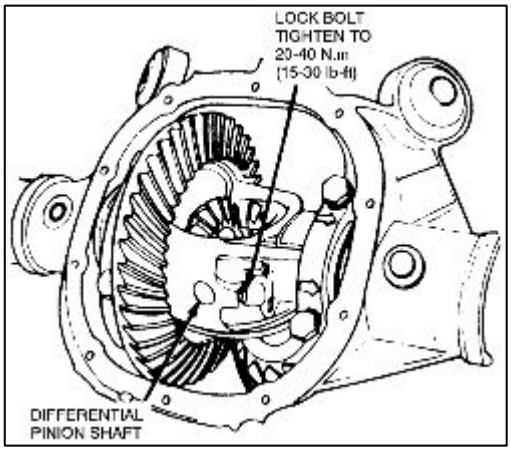


Fig. 17: Be sure to tighten the pinion shaft lock bolt as indicated to prevent it from accidentally loosening.

4. Install the C-lock, then pull outward slightly on the axle shaft, and make sure the C-lock seats in the counterbore of the differential side gear.

5. Insert the differential pinion shaft through the case, and pinion gears. Aligning the hole in the shaft with the lock bolt hole. Apply a suitable locking compound to the lock bolt, and insert it through the case, and pinion shaft. Tighten the lock bolt to 15-30 ft. lbs.

6. Cover the inside of the differential case with a shop rag, to prevent contaminating them with dirt or pieces of the old gasket, and clean the machined surface of the axle housing. Remove the shop rag.

7. Carefully clean the gasket mating surfaces of the cover of any remaining gasket, or sealer. A putty knife is a good tool to use for cleaning the gasket surfaces.

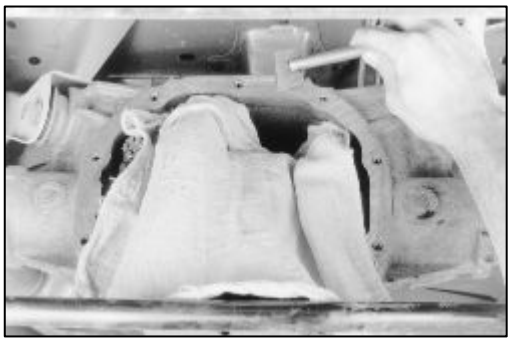


Fig. 18: Cover the differential unit with a clean rag, and clean the gasket mating surface with a scraper.

8. Install the rear cover using a new gasket, and sealant. Tighten the retaining bolts using a crosswise pattern.

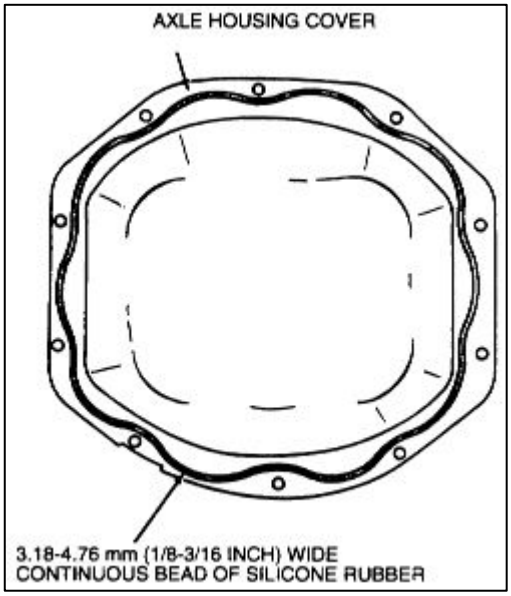


Fig. 19: Apply a bead of silicone sealer (RTV) to the clean differential cover, and install it on the axle housing.

Fig. 20: Fill the axle housing with the proper type, and amount of lubricant.

9. Refill the rear axle housing until it is 6-14 mm (1/4 - 9/16 inch) below the fill hole. Using the proper grade, and quantity of lubricant. Motorcraft® SAE 75W-140 Synthetic Rear Axle Lubricant is a good choice. It should hold 3.3 Pints of lubricant. Install the filler plug.

10. Install the brake rotor, and caliper. Or Drum if so equipped.

11. Install the wheel, then remove the jack stands, and carefully lower the Trike.

NOTES

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Members of the "GL1800Riders Trike Forum", for Photos, and technical information submitted for use within this document.

REFERENCES

Auto Zone DIY, for Ford Rear End Seal Replacement, and personal experience.
Auto Zone for crossing the replacement parts referred to in the parts list.

Additional Thanks

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Jim Leatherman MD
George Lewis TX

Disclaimer

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May 2, 2008